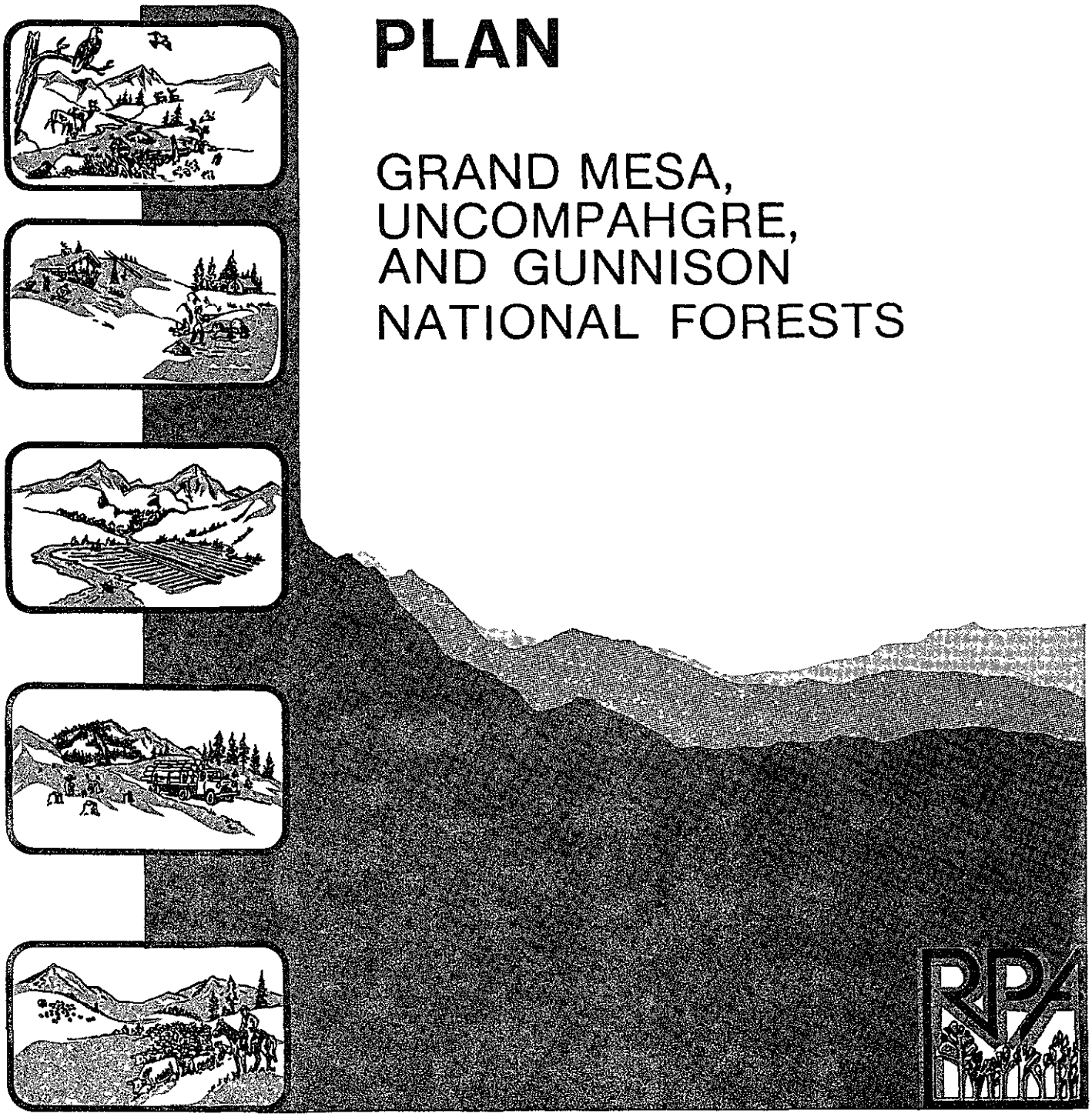
United States
Department of
Agriculture

Forest Service

Delta, Colorado

AMENDED LAND AND RESOURCE MANAGEMENT PLAN

GRAND MESA, UNCOMPAHGRE, AND GUNNISON NATIONAL FORESTS



THE AMENDED LAND AND RESOURCE MANAGEMENT PLAN

for the

Grand Mesa, Uncompahgre, and Gunnison National Forests

Rocky Mountain Region
USDA, Forest Service

CHANGES FROM THE ORIGINAL 1983 PLAN

The differences between the original 1983 Land and Resource Management Plan and this Amended Land and Resource Management Plan are reflected primarily in the sections related to timber management. Minor edits have been made to the remaining portions of the Plan, but nothing to change the content

Changes were made in Chapter II concerning demand estimates for some resource programs; the economic situation has been changed to reflect updated information requested for the reanalysis for the Amendment The determination of land tentatively suited for timber production, land suited for timber production, land financially efficient for timber production, and land economically efficient for timber production has all been re-evaluated. Chapter III (Standards and Guidelines) has been simplified and updated. In Chapter II, changes have been indicated with **NEW TEXT** prior to text that has been revised or added and with **END NEW TEXT** following the text. In Chapter III, changes are indicated with three asterisks (***) prior to the appropriate Standard and Guideline that has been revised The entire Chapter IV (Monitoring Plan) has been revised

Appendices E, F, and O have been changed. Appendices H, Q, and S have not changed.

Most of the implementation schedules (appendices A, B, C, D, G, I, J, K, L, M, N, P, and R) found in the original plan are no longer in this Amended Plan; it was found during the first six years of implementing the Plan that projecting proposed activities 10 years into the future was impractical. Most project proposals will be developed in annual schedules such as the Five-Timber Sale Action Plan and Allotment Management Plans.

To aid the reader in locating the significant changes, an asterisk (*) has been placed alongside the left side of the affected paragraphs

AMENDED LAND AND RESOURCE MANAGEMENT PLAN
for the
GRAND MESA, UNCOMPAHGRE, AND GUNNISON
NATIONAL FORESTS

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I. Introduction

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PREFACE/INTRODUCTION

PURPOSE OF THE AMENDMENT

This Amendment supersedes the original Forest Plan and "stands alone" as the direction for the Forest While it presents new information concerning the timber management situation on the Forest, it does not modify other resource program goals and outputs Minor changes have been made in Chapter II concerning demand estimates for some of the other resource programs, and the economic situation has been changed to reflect the information obtained during the re-analysis for the timber amendment. Some of the standards and guidelines (Chapter III) have been simplified and brought up to date, changes from the original Forest Plan are clearly marked for the reviewer. The Monitoring Plan (Chapter IV) has been rewritten in it's entirety.

The purpose of this Amendment to the Land and Resource Management Plan is to provide new direction for timber management on the Grand Mesa, Uncompahgre, and Gunnison National Forests (the Forest) The original Forest Plan became effective in September, 1983, and has guided timber management on the Forest. However, a re-analysis of the timber program was considered necessary for the following reasons: 1) the demand for timber products by the commercial wood products industry has significantly changed, and; 2) an administrative appeal of the original Forest Plan resulted in direction from the Secretary of Agriculture to re-analyze and better document the rationale for the timber management program on the Forest.

Most of the implementation schedules found in the appendices to the original plan are no longer found in this amendment, it was found during the first six years of implementing the plan that projecting these proposed activities 10 years into the future was impractical Most project proposals will be developed in annual schedules such as the Five-Timber Sale Action Plan and Allotment Management Plans.

In the Final Supplemental Environmental Impact Statement (FSEIS)· 1) the issues and problems that drove the Amendment process are presented; 2) the changes in the affected environment are displayed; 3) five varying timber management alternatives are presented; and 4) the environmental effects of the five alternatives are disclosed. The FSEIS also contains detailed information about how the analysis was conducted and how the public was involved.

The FSEIS identified Alternative 1G as the "preferred" alternative and this Plan displays how that alternative would be implemented. The Record of Decision for the Final Supplemental Environmental Impact Statement documents the reasons for selecting this alternative.

The timber management portion of the Plan will be implemented beginning in fiscal year 1991 Resource programs other than timber will continue to be implemented as begun in accordance with the original Forest Plan Budget levels may have a substantial effect on the implementation rate of the Amended Plan. Historical funding levels since the Plan was first issued have not been at the 100% level needed to implement the Plan.

PURPOSE OF THE FOREST PLAN

This Amended Forest Land and Resource Management Plan guides all natural resource management activities and establishes management standards and guidelines for the Grand Mesa, Uncompahgre and Gunnison National Forests (the Forest) for up to 15 years. The Forest is currently anticipating that a revision to the Plan will be completed by fiscal year 1998 which will be 15 years after the original Plan The Plan describes resource management practices, levels of resource production and management, and the availability and suitability of lands for resource management

The Plan embodies the provisions of the National Forest Management Act of 1976, the implementing regulations, and other guiding documents Goals, objectives, land use determinations, prescriptions, and standards and guidelines are statements of the Plan's management direction. However, the projected outputs, services, and rates of implementation are estimates and are dependent on the annual budgeting process.

Management direction established in the Plan will normally be reviewed (and updated if necessary) at least every 5 years and will ordinarily be revised on a 10-year cycle or at least every 15 years. The Plan may be revised whenever the Forest Supervisor determines that conditions or demands in the area covered by the Plan have significantly changed. In addition, when changes in the RPA program significantly affect Forest programs, the Plan may be revised The Plan can be amended whenever the Forest Supervisor believes that the current information needs to change or new direction should be included. An amendment can be either significant or not, as determined by the scope of the amendment. The decision on the significance of an amendment is made by the Forest Supervisor.

RELATIONSHIP OF THE AMENDED PLAN TO OTHER DOCUMENTS

ENVIRONMENTAL IMPACT STATEMENTS

The Plan sets forth the preferred alternative for managing the resources of the Forest and is a result of extensive analysis and considerations that are addressed in the Final Environmental Impact Statement (1983 FEIS) and the 1990 FSEIS The planning process and the analysis procedures that were used to develop the Plan are described or referenced in the FEIS and FSEIS

Activities and projects will be planned and implemented to carry out the direction in the Plan . The Forest will perform site specific environmental analysis on these projects and activities as required by the National Environmental Policy Act. Project environmental analysis will use the data and evaluations in the Plan, FEIS and the FSEIS as its basis, but frequently will need additional or more specific information. Documentation of project level analysis will be tiered to the FEIS and FSEIS accompanying the Plan. Tiering, in this case, means that environmental assessments prepared for projects arising from the Plan will refer to the FEIS and FSEIS and associated documents rather than repeat information. The environmental documents for specific projects can therefore concentrate on issues unique to the projects.

LONG-RANGE PLANNING

Long-range planning occurs at the national, regional, and local levels as required in applicable laws and implementing regulations. National planning includes the Resources Planning Act (RPA) Assessment and RPA Program. Regional planning includes the Regional Guide. Local planning includes Forest Plans within the National Forest System, Research Plans within Research Work Units assigned to Experiment Stations and the Forest Products Laboratory, and State Forest Resource Plans for the State and Private Forestry System.

The RPA Assessment is completed every ten years for the forest and rangeland renewable resources in the United States, including both public and private ownerships. Long-range supply and demand projections come from Forest and Regional levels on timber, range, minerals, water, wildlife and fish, outdoor recreation, and wilderness resources. The findings of the RPA Assessment are reflected in the RPA Program

The RPA Program is updated every five years and has three components: 1) roles in natural resource management for Forest Service management; 2) Forest Service program responses to contemporary issues, 3) long-term strategy to guide the program development and budget process. The long-term strategy is submitted to Congress along with the Presidential Statement of Policy. The long-term strategy is either accepted, amended, or rejected by the Congress at which point each Region's share of the long-term strategy is reflected.

The Regional Guide plays a key role for conveying and interpreting management direction from the national level to the local level Specifically the Regional Guide:

1. Reflects the general coordination of National Forest System, State and Private Forestry, and forestry research programs.

2. Displays the Region's share of the national RPA Program.

3. Provides Regional goals and objectives to guide National Forest management throughout the Region

4 Provides planning guidance for consistent revision and amendment of Forest Plans within the Region

5. Provides standards and guidelines that specify how management activities will be implemented

Local level Forest Plans provide direction for all resource management programs, practices, uses, and protection measures The Plan consists of both forest-wide and management area specific standards and guidelines that provide for land uses with anticipated resource outputs under the given set of management constraints The outputs are not hard and fast decisions within the plan since all conditions required to produce outputs, such as annual budget appropriations, are not controlled by the Forest The Plan does not contain all decisions regarding the use and occupancy of the Forest, it is a controlling consideration, but project decisions, which create irretrievable commitments of resources, are usually made after further site-specific review While the Plan controls the Forest's management, it is not intended to make site-specific and project level decisions

SHORT-RANGE PLANNING

Short-range planning implements long-range planning Analysis and evaluation can lead to amendment or revision of Forest Plans, project planning, and project implementation Short-range planning achieves the goals and objectives of the Forest Plan This level involves site-specific analysis to meet NEPA requirements for decisionmaking Forest Service managers must involve the public and comply with the many site-specific requirements of the applicable laws, regulations and the direction set forth in the Plan

MAKING PROJECT DECISIONS

Forest Plans and accompanying EIS's do not normally have sufficient detail to make the second level (site specific) decisions for individual projects and activities Making project specific decisions requires further analysis of the proposed practices, **analysis and evaluation** is necessary to bridge between Forest Plan decisions and project decisions The results of analysis and evaluation are documented in project files and appropriate NEPA disclosure and decision documents· Environmental Impact Statement (EIS), Environmental Assessment (EA), Categorical Exclusion (CE), Record of Decision (ROD), Decision Notice (DN), and Decision Memo (DM)

Analysis and evaluation is intended to assist District Rangers and Forest Supervisors in achieving the goals and objectives in Forest Plans Creativity and innovation are encouraged throughout the analysis and evaluation This process usually includes·

Project Identification and Design - Selects specific management practices and determines how, when and where they should be applied to assist in achieving the goals, objectives and desired future condition specified in the Forest Plan Estimates of costs and benefits are part of this phase

NFMA Analysis - Compares the proposed project to the requirements in the Forest Plan A finding that the proposed project is not consistent with the Forest Plan requires either a change in the proposal, deferral of the project, or an amendment of the Forest Plan Other appropriate NFMA requirements are included in this analysis

NEPA Analysis - Determines the consequences of proceeding with the proposed project(s) and a reasonable range of alternatives This analysis identifies the cumulative effects and any interconnected actions, The NEPA analysis process begins **after** the individual project proposal(s) has been identified, One or more project proposals may be addressed in a single NEPA document. The NEPA disclosure document must address the direct, indirect, and cumulative effects of the proposal(s). Documentation of the NEPA analysis must provide the basis for making all required NFMA decisions.

Other analyses are often necessary to make project decisions and include the following:

Type of Analysis	Analysis Tool
Wildlife habitat capability	HABCAP
Water Quality and quantity	HYSED
Transportation system	NETWORK 3
Economic and financial analysis	DGECON & value analysis
Visual Management	Perspective Plotting

Project Decisions - Evaluates the results of the above analyses and makes one or more project specific decisions. These decisions are documented in the appropriate decision document (ROD, DN, or DM). A number of project specific decisions may result from a single analysis.

During the past several years titles such as Area Analysis, Integrated Resource Management, and Diversity Unit Analysis have been used to identify this analysis and evaluation. This diversity of nomenclature has resulted in confusion related to the process of identifying the projects necessary to implement Forest Plans. Some have assumed that analysis and evaluation is an additional level of planning attempting to bridge Forest Plan and project decisions. Analysis and evaluation is not a new or additional level of planning. It provides the site specific analysis and evaluation necessary for decisions implementing Forest Plans

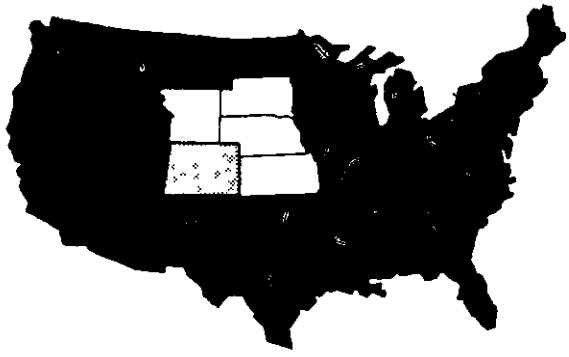
Project environmental analysis provides an essential source of information for Plan implementation and monitoring First, as project analysis is completed, new or emerging public issues or management concerns may be identified Second, the management direction designed to achieve management area goals is validated by the project analysis. Third, the site-specific data collected for project environmental analysis serves as a check on the correctness of the Plan direction. Information included in the project environmental analysis is used in the monitoring process to help determine when changes should be made in the Plan

LOCATION OF THE FOREST

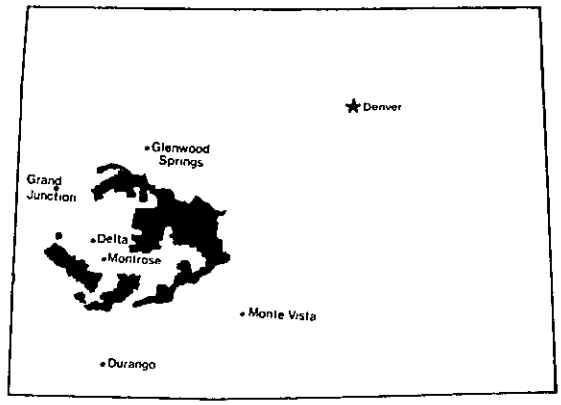
Figure I-1 is a vicinity map displaying land administered by the Forest

FIGURE I-1

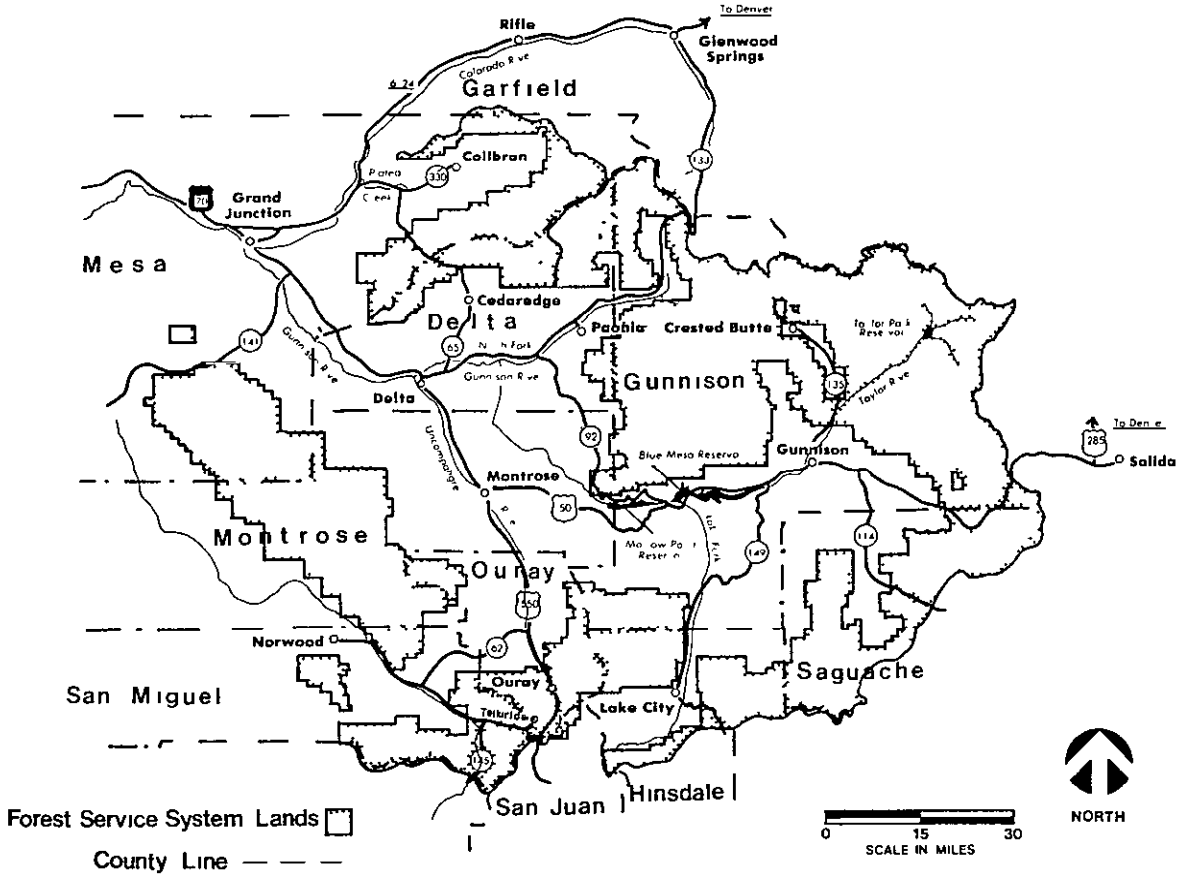
Region 2, Forest Service,
United States Department of Agriculture

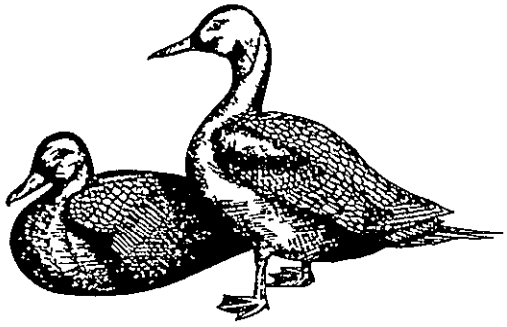


The State of Colorado



Grand Mesa, Uncompahgre & Gunnison National Forests





II. Management Situation

II. MANAGEMENT SITUATION

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CHAPTER II

MANAGEMENT SITUATION

*CHANGES THAT HAVE OCCURRED SINCE THE 1983 PLAN HAVE BEEN INDICATED WITH ***NEW TEXT*** PRIOR TO THE NEW OR REVISED TEXT AND WITH ***END NEW TEXT*** FOLLOWING THE TEXT.*

Chapter II describes the Forest as it is today, and how the Forest is expected to change with the implementation of the Plan Chapter II has therefore been divided into two sections; the **PRESENT**, and the **FUTURE**

The **PRESENT** (See page II-1 below) describes the Forest setting, resources and uses, the demands placed on the Forest, and the supplies available to meet those demands.

The **FUTURE** (See page II-72) displays the way in which the management direction in the Plan addresses issues and concerns. The Future will summarize the Forest's future condition under the Plan direction

The analysis of the Forest's supply and demand situation is summarized in this chapter Some of the information is updated to reflect the analysis which occurred during this timber amendment analysis; other information not related to the timber amendment, is based on the original analysis Research needs are also identified as part of the Forest planning process

THE PRESENT

PHYSICAL AND BIOLOGICAL SETTING

The Forest's east boundary follows the Continental Divide and the Elk Mountains. The south boundary includes the northern slopes of the San Juan Mountains and the crest of the Wilson Mountains. The west and north boundaries are formed by the Uncompahgre Plateau and Battlement Mesa

The Forest lies within the upper Colorado River drainage Major rivers include the Gunnison, Uncompahgre, and San Miguel

The planning area is located astride two physiographic provinces, the Colorado Plateau and the Southern Rocky Mountains. The two provinces differ greatly in land-forms, rock types, and mineral deposits. Half of the planning area, within the Colorado Plateau Province, is characterized by high flat top mesas and rolling plateaus, sedimentary rocks, and mineral deposits including oil, natural gas, oil shale, coal, vanadium, and uranium. The other half of the planning area is characterized by rugged mountains, igneous rocks, and hardrock minerals including gold, silver, lead, zinc, copper, molybdenum, and uranium. Elevations range from about 6,000 feet to peaks over 14,000 feet

The Forest is located within the Rocky Mountain Forest Eco-Region of the Highland Province, and includes four major climatic and vegetation zones, lower montane forest, upper montane forest, subalpine forest, and alpine vegetation Common vegetation types at the lower elevations include sagebrush, pinyon pine, juniper, Gambel oak, and ponderosa pine Higher elevations include Engelmann spruce, subalpine fir, lodgepole pine, Douglas-fir, and quaking aspen The major range types include the mountain meadow, mountain bunch grass, alpine meadow, and aspen-forb plant associations

Much of the Forest is not in optimum growing condition The lodgepole pine, Engelmann spruce-subalpine fir and aspen types in particular tend to be overmature and therefore susceptible to losses from insect and disease infestations

Non-forested areas consist of grassland, brushland, and alpine communities. Grassland areas occur along streams and are often interspersed with forested areas Sagebrush and oakbrush communities are common at elevations below the forested area while alpine communities predominate above timberline

The various vegetation types provide habitat for a variety of game and nongame wildlife species. The more common species include mule deer, elk, black bear, blue grouse and ptarmigan, Gambel's quail, snowshoe hare, and cottontail rabbit. Bighorn sheep inhabit several areas of the forest Favorable habitat for the bald eagle and peregrine falcon exists in the planning area Fisheries include cutthroat, rainbow, brook, mackinaw, and brown trout, kokanee salmon, northern pike, and white sucker

Vegetation

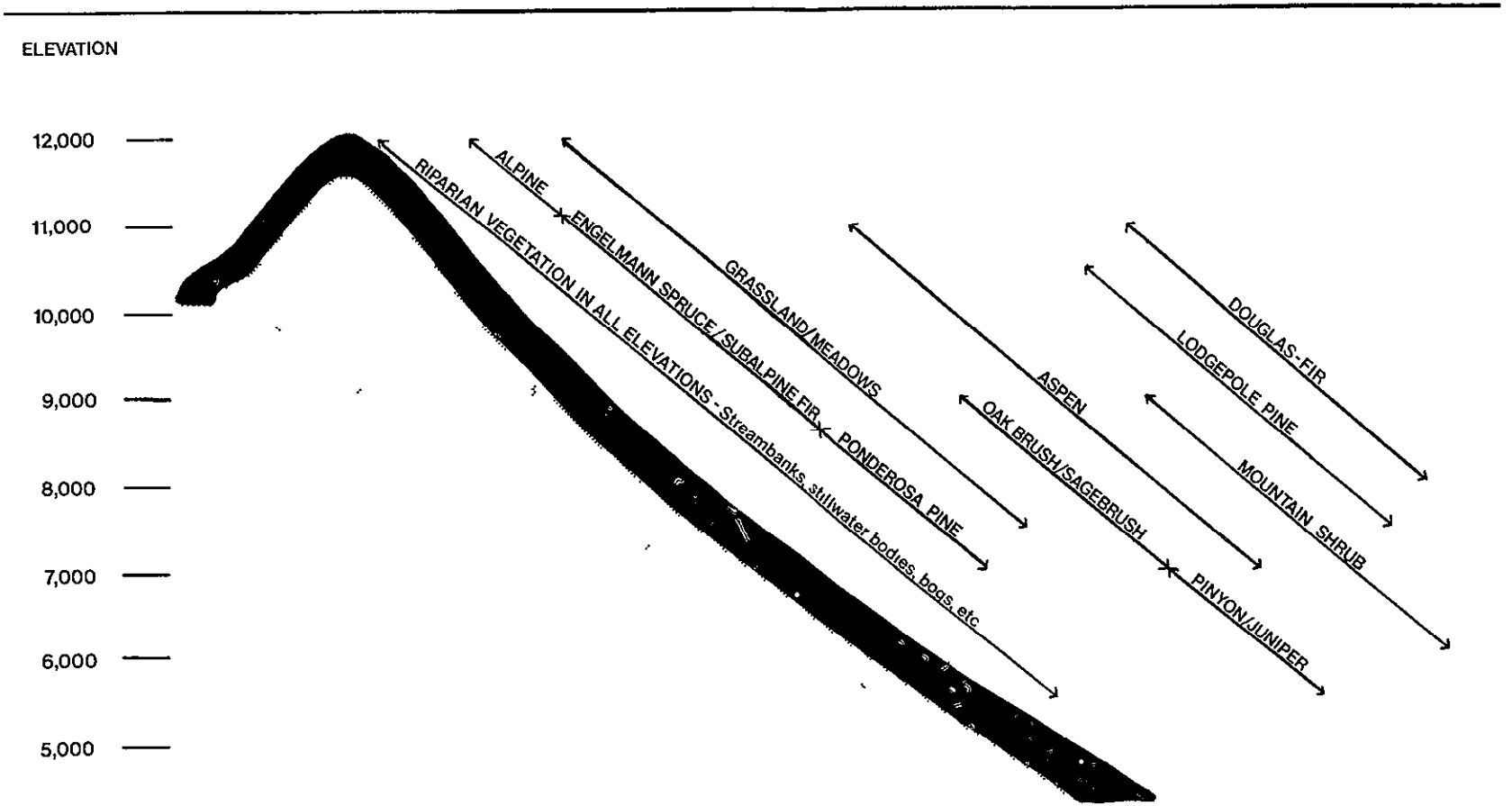
Forest vegetation contributes to Forest character more than most landscape features Its form, color, and texture, is easily discernible to the human eye Society perceives it to have beauty and utility

The hundreds of individual plant species which occur on the Forest may be classified into less than a dozen vegetation types. Each type lends a unique character to the landscape and has an associated utility to society

Vegetation is a dynamic resource It will change over time The way it will change is based on factors that effect the vegetation and the site on which it is growing The Forest Reserves were established prior to 1900 Since that time Forest managers have, to some extent, controlled some of the factors that effect vegetation and growing conditions

The following discussions describe the major classified vegetation types on the Forest. Figure II-1 displays elevations ranges for forest vegetation

FIGURE II-1


ELEVATION
12,000
11,000
10,000
9,000
8,000
7,000
6,000
5,000
RIPARIAN VEGETATION IN ALL ELEVATIONS - Streambanks, stillwater bodies, bogs, etc.
ALPINE
ENGELMANN SPRUCE / SUBALPINE FIR
PONDEROSA PINE
GRASSLAND/MEADOWS
ASPEN
OAK BRUSH/SAGEBRUSH
PINYON/JUNIPER
DOUGLAS-FIR
LODGEPOLE PINE
MOUNTAIN SHRUB

Alpine

Alpine vegetation grows above native tree elevation limits. It is characterized by grasses, grasslike forbs, low shrubs, and poorly formed trees Alpine provides a unique opportunity for scenic viewing particularly during the early summer when wildflowers are in bloom. The most important factor controlling the distribution and growth of alpine plants is available soil moisture The wildlife habitat provided by this type supports elk, bighorn sheep and mountain goats Ptarmigan and pika are unique to the type. Livestock, particularly sheep, graze the alpine in designated range allotments

Due to a short growing season and harsh climatic conditions, major disturbances of this vegetation type are very slow to recover. Alpine vegetation will perpetuate itself unless there is severe ground disturbance.

Aspen

The aspen vegetation type typically occurs at lower elevations interspersed with grasslands, meadows, mountain brush, and other forest types. Aspen stands on the Forest are typically mature to overmature with high disease and mortality levels

Aspen is important to recreation use. It is an important feature in the landscape character in the southern Rocky Mountain Physiographic province. Variety classes A and B have the highest visual quality on the forest Aspen color and texture contribute to the character in many ways. These include edge contrast between aspen and conifer stands, aspen islands in large meadows, and massive textural blocks all occurring in the midground and background. In the foreground distance zone aspen form and texture are important features. Color is a dominant element in all distance zones. Color contrasts with surrounding coniferous vegetation, nonforest areas, bare rock, water and sky. The color change between seasons attracts many forest visits year round.

Mountain grasslands and associated aspen ranges furnish forage for a large segment of the livestock industry in Western Colorado. Many aspen sites support a luxuriant understory of forbs and grasses. These areas are important summer range lands for both cattle and sheep. It is common to send 100 pound lambs directly to market at the end of the summer grazing season in early September

The aspen ecosystem is important to Colorado wildlife. Deer and elk use aspen under 6 feet in height for forage They use taller aspen for thermal and hiding cover. Aspen sprouts above snow-cover are critical to winter diet in some areas. The grass, forb and shrub understory provide a summer food source as more forage is present than in conifer stands.

Aspen forests are prime elk calving and deer fawning habitat This is especially true on south slopes within 1/4 mile of water between winter and summer range

More songbirds are normally observed in aspen forests than in coniferous forests. Aspen provides food, nest sites, and cover for warblers, vireos, blue grouse, owls, thrushes, kinglets, and a variety of other birds. Small mammals such as shrews, moles and mice use aspen forests. Aspen understory and leaf litter provides their food, cover and nest sites. Aspen along riparian zones is the basic food for beaver.

Over mature aspen stands are usually decadent and provide cavities and insects for bird and mammal species Aspen stands are usually in close proximity to conifer stands that can provide cover during aspen regeneration

Aspen management in transitory big game range helps support the animals longer in the spring and fall. This takes pressure off summer and winter range and provides extra forage during mild winters.

Aspen regenerates almost exclusively through root sprouting. This results in clones which are genetically identical to the trees from which they originated Trees within one clone are very homogeneous in such characteristics as rate of growth, form, vigor, resistance to disease, and time of leaf break and leaf fall. These characteristics often vary widely between clones due to genetic and site differences

To stimulate root sprouting the majority of aspen clones require a major disturbance that results in the removal of most or all of the existing trees Wildfire has historically been the primary disturbance initiating root sprouting Control of wildfire has permitted many aspen stands to become overmature with no means of regenerating themselves. In the absence of disturbance, either natural or man-made, it is estimated that up to 1/2 of all the aspen on the Forest could convert to conifer types in 100 to 200 years. The stands most likely to convert to conifer are those currently classified as conifer-invaded and even-aged which make up about 80% of the aspen on the Forest

NEW TEXT Recent information (Reference nine page informal paper "Aspen Regeneration and Soils" by Douglas H. Cryer and John E Murray; Soil Conservation Service, Montrose, Colorado, 81401; see planning records, file designation R-1920-2-1 h) indicates that soils may play an important role in determining whether a particular aspen site will regenerate to aspen (stable forests) or convert to coniferous species (seral forests).

Soils that are dark colored usually have a higher pH (more basic) and have more available nutrients; these are termed "mollic" type soils "Albic" soils are generally lighter colored, have a lower (more acidic) pH and have less available nutrients. It appears that when aspen is growing in soils that are more albic in nature, that the aspen stand will be more seral, or more easily convert to coniferous species with or without disturbance Furthermore, it appears that undisturbed aspen growing in mollic soils may cause the soil characteristics to change enough to convert a stable aspen site to a seral one.

Clearcutting a stable aspen site will tend to maintain a stable aspen site *Clearcutting a seral aspen stand which is on a soil that has aged too far towards* an albic type soil will more than likely hasten a coniferous intrusion Burning a seral aspen site will generally cause this stand to revert to stable aspen since the soils will be changed as a result of the fire The presence of coniferous species is not necessary for an aspen stand to be seral in nature ***END NEW TEXT***

Douglas-fir

The Douglas-fir type typically occurs on steep, north-facing slopes at lower elevations and is frequently the only conifer vegetation in a large area. On south-facing slopes, Douglas-fir occurs sparsely on rocky ridges, steep hillsides, and canyon slopes.

Douglas-fir is a long-lived species which is valued for wildlife habitat diversity, scenic quality, and cover on big game winter range Douglas-fir also contributes to watershed protection and is a desired commercial tree species The Douglas-fir type has not been treated in the past resulting in mostly mature and overmature stands Very little acreage of early successional stages of Douglas-fir are known to exist on the Forest.

Douglas-fir is a climax species that reproduces from seed Currently the stands have a relatively uniform age structure Natural succession will perpetuate the current uniform distribution.

Gambel Oak

The oak brush vegetation type commonly occurs at lower elevations on the Forest. At its lower elevation range, it is frequently associated with pinyon-juniper trees At its upper limit it is often interspersed with aspen, Douglas-fir or ponderosa pine.

The Gambel oak type provides watershed protection, retards snowmelt, provides browse for wildlife and domestic stock, and is a popular firewood species Gambel oak is capable of reaching tree size on some sites This savannah type provides highly productive useable forage for wildlife and livestock The mature trees *provide cavities for small mammal dens and non-game bird nests* Food production for deer and turkey is highest on these sites. Gambel oak stands are often thick and animal mobility is severely restricted and the more palatable grasses and forbs are shaded out

Currently, the majority of the Gambel oak type is estimated to be in an early seral stage A more balanced structural distribution would improve this type for wildlife and domestic stock and increase the landscape's visual diversity

Grasslands and Meadows

Grassland and meadow vegetation types occur throughout the Forest interspersed with all other vegetation types Most grasslands support, or are capable of supporting, numerous kinds of perennial grasses and forbs Herbage production on mountain grasslands occasionally exceeds 3,000 pounds per acre, however, yields of 1,000 to 2,000 pounds per acre are much more common

Many of these open parks may be the results of fire The forage produced in the grassland and meadow vegetation types is available for both wildlife and domestic stock. The open nature of these vegetation types provides a great deal of scenic variety Management is typically directed at increasing forage while maintaining visual quality.

Lodgepole Pine

Lodgepole pine occurs on the Forest primarily in even-aged stands of fire origin. Lodgepole pine is typically a seral species which, in the long-term absence of major disturbance, will be replaced by more shade-tolerant species--generally Engelmann spruce and subalpine fir. On some sites, however, where site conditions or lack of a seed source prevent the establishment of more shade tolerant species, lodgepole may form a virtual climax Lodgepole pine provides scenic beauty, wildlife habitat, firewood and other wood products.

Lodgepole pine is an aggressive pioneer into disturbed sites Existing stands will deteriorate in 200 to 300 years. As lodgepole pine matures and loses vigor, it becomes highly susceptible to attack by the mountain pine beetle. Under the right stand conditions, individual beetle infestations multiply into an epidemic The long-term solution to control pine beetle epidemics is to create a mosaic of age and size classes in lodgepole pine and to apply intermediate cultural treatments which promote vigorous, disease free trees.

Mistletoe also heavily infects large amounts of lodgepole pine on the Forest All of the suitable lodgepole pine stands occur on the Gunnison National Forest Over 16,000 acres of stagnated lodgepole pine occurs on the Forest Following disturbance, natural regeneration is often so prolific that the stand is overstocked and may become stagnated if it is not thinned. (Stagnation is a condition where competition between individual trees for light, water, and nutrients is so intense that growth ceases).

If lodgepole pine is not treated the even-aged stands will become overmature and the mountain pine beetle infestation risk will increase The large areas of beetle killed trees will become increasingly susceptible to wildfire If serotinous cones are present the lodgepole pine type could be maintained. Without a seed source meadows or other seral species such as aspen could invade burned over areas.

Mountain Shrub

This vegetation type is dominated by one or more of the following species: serviceberry, rabbitbrush, snowberry, and mountain-mahogany. It is located in combination with other brush types and some of the drier forest types. The primary value of the type is for wildlife habitat and domestic sheep range It has particular importance when available for use as big game winter range. There is a significant imbalance in the structural stages with most of the type in intermediate and late stages on the Forest

Pinyon/Juniper

This vegetation type is a scrub woodland composed of pinyon pine and juniper. It is a widespread type occurring below the elevation limit of Gambel oak and generally occupies the lowest elevations on the Forest.

The pinyon-juniper type occurs on the driest sites on the Forest and therefore is the least productive type. Vegetation is characterized by small size and low growth rate.

It provides forage for wildlife and livestock, adds scenic variety to the landscape, and furnishes products such as firewood, posts, and Christmas trees. It is important cover on big game winter range Most of the type is estimated to be in the intermediate and late structural stages which reflects the lack of recent natural disturbance.

Many sites are grazed This has destroyed much of the small sized understory An estimated 10 percent is in an early seral stage in old chaining areas

Riparian

The riparian vegetation type consists of plant associations occurring in areas with year-round high water tables (moist soils). Most of the distinct vegetation types on the Forest are represented in the Riparian zone In addition, the riparian includes willow, cottonwood and alder. These areas are typically located adjacent to streams and around springs, lakes, or bogs While small in total area, they represent delicate, very important habitat for wildlife and serve as sediment traps to help purify overland water runoff Desirable forage production is high, and under proper management these areas are an important part of grazing allotments. The riparian type also provides visual diversity along most forest streams. Riparian is important for recreation such as campgrounds and fishing Riparian is one of the more productive sites on the forest It also has the most uneven age structure.

Sagebrush

This vegetation type occupies relatively dry sites on the Forest It is typically *found at lower elevations and is highly valued as big game winter range It also* provides a scenic desert-like landscape and significant forage for livestock Most of the type is in intermediate and late structural stages. Management techniques used in this type are fertilization, prescribed burning, and mechanical or chemical treatment.

Sagebrush is an invader species that may eventually take over other sites If left untreated the sagebrush type will perpetuate itself and expand

Engelmann Spruce/Subalpine Fir

The Engelmann spruce and subalpine fir type occurs at high elevations and represents the climax on the majority of the sites it occupies It usually occupies moist sites Spruce can grow to over 300 years and fir to 250 years. They generally occur in single age stands but occasionally occur in 2, 3, or multi-story stands. It's dense forest growth and layered appearance provides outstanding scenic views. It is also valued for wildlife habitat, watershed protection and production, and wood products.

There is currently a skewed distribution of age classes or structural stages. Sixty percent of the type is overmature. As the spruce and fir type matures, the trees become susceptible to insect and disease infestations Subalpine fir is infected first, followed by spruce. A more even balance of structural stages would improve the types resistance to insect and disease infestations

There was a massive spruce bark beetle epidemic during the period 1939 to 1952 It effected the old growth spruce and fir stands on the Forest at that time. Many of the dead trees are still standing

The spruce/fir type reproduces by seed. It will reproduce itself naturally if not treated The reproduction will retain the same age class distribution as currently exists If a natural catastrophe occurs such as a major fire, the site will probably revert to aspen or lodgepole pine.

Ponderosa Pine

This vegetation type is located almost entirely on the Uncompahgre Plateau between 7,000 and 9,000 feet. Ponderosa Pine usually grows in pure stands, but can be associated with aspen and oakbrush. Ponderosa pine reproduces by seed. Natural regeneration requires the combination of a good seed crop, favorable seedbed conditions, and ample moisture the spring following seed fall (and several subsequent springs) to assure germination and seedling survival These three conditions coincide rather infrequently

Historically, low-intensity wildfires burned through ponderosa pine stands at frequent intervals. These fires had little effect on established trees Thick bark makes ponderosa pine fire resistant However, these fires prevented the buildup of heavy duff accumulations and kept competing vegetation in check, thus maintaining seedbed conditions favorable to ponderosa pine. fire suppression over the past several decades has resulted in a buildup of organic litter, making seedbed conditions less favorable for ponderosa pine. Currently the type is mature to overmature, open grown and poorly stocked. There are some uneven aged stands which are the result of past cutting activity.

Ponderosa Pine is important for timber production, livestock grazing, and wildlife habitat. Elk calving areas can be located in this type at lower elevations.

Ponderosa Pine is considered a climax species on many of the sites on which it occurs, particularly near the center of its elevational range. Major disturbances, such as high-intensity fires, heavy logging, or widespread mortality from insect or disease infestations may cause ponderosa pine sites to revert to more seral stages such as aspen, oakbrush or grass. The mountain pine beetle is currently at epidemic levels in some localized areas, but the rate of spread appears to generally be decreasing

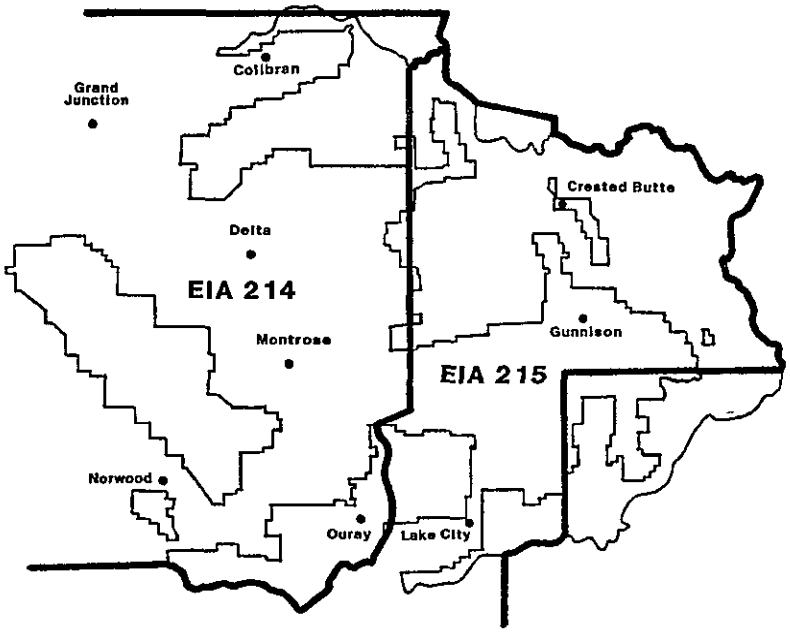
SOCIAL AND ECONOMIC SETTING

Economic Impact Areas

The Forest Planning Area contains portions of 4 Economic Impact Areas (EIA) These areas have been identified to define local economies within the Rocky Mountain Region which Forest Service management may effect. All outputs and effects for the Garfield county portion of the Grand Mesa National Forest are included in the White River National Forest planning process. Saguache County was analyzed in the Rio Grande National Forest planning process Figure II-2 displays the location of EIA's 214 and 215. These areas were used to conduct the economic impact analysis

FIGURE II-2

ECONOMIC IMPACT AREAS



Population

The planning area is seperated from Colorado's front range population centers by the Continental Divide. Total population of the area is about 170,000 people Population increased approximately 52,000 in the planning area between 1970 and 1980 This is a 43.63% increase and is higher than the state average.

NEW TEXT

Employment and Income

During the Amendment analysis, new information revealed that the unemployment rate in Economic Impact Areas 214 (western half of the Forest) had increased from 4 8% to 9.9% and that it had also increased in Economic Impact Area 215 (eastern half) from 3.9% to 6.0%. The new unemployment rates were based on the first eight months of 1988.

Economic Impact Area 214 contains the majority of the work force (91% or approximately 63,200 people). Unemployment in the first eight months of 1988 was high in all counties in Economic Impact Area 214 and ranged from 8.4% in San Miguel County to 12.3% in Delta County. Montrose County averaged 11 9% while Mesa County averaged 9.0%. These high unemployment rates are due in part to depressed uranium prices, mine closings, depressed agriculture, and the oil shale boom and bust of the early 1980's. The unemployment rates have increased to the point that Delta, Mesa (including the City of Grand Junction), Montrose, Ouray, Saguache, and San Juan Counties are designated as labor *surplus areas.*

The 1983 Forest Plan discussed sources of social change for each of six Human Resource Units as being partially or totally related to the increased development of oil, gas, coal, and molybdenum Production and prospecting for these mineral resources has decreased significantly, due to large discoveries elsewhere in the world and a significant reduction in price. Not only did the predicted social change associated with this rapid growth in the mineral industry fail to occur, but many mineral related jobs were lost. The result is the relatively high unemployment rate in Economic Impact Area 214.

An anticipated major cause for social change in Gunnison County (in 1983) was a multi-million dollar molybdenum mining operation. The planned mining operation was canceled when the price for the mineral became depressed

Expenditures and Returns

The fiscal year 1990 Forest budget was $7 7 million (1982 dollars) including capital investment. The Forest's Forest Plan budget is 13.1 million dollars including capital investments

Payments to Counties

In 1988, about $185,000 (1982 dollars) was paid to the 10 counties in the Forest Planning Area from the National Forest Fund Receipts program. ***END NEW TEXT*** The following components comprise the receipts that make up the "25% Fund".

- Gross receipts from timber harvested
- Land use permits
- Recreation permits
- Mineral permits, leases and sales
- Recreation user fees
- Grazing fees

In addition to the above, payments in lieu of taxes (PILT)are authorized to the counties under one of two options based on the number of "entitlement land" acres, but not for tax exempt lands (but not donated lands) acquired from State or local governments The amount paid is the higher of (A) 75 cents for entitlement land acres within the county's boundaries, reduced by the amount of certain Federal payments that were received by the county in the preceding fiscal year, or (B) 10 cents for each entitlement land acre within the county, *not* reduced for Federal land payments received in the preceding fiscal year. Both options are subject to a ceiling based on the population of the county. This ceiling is based on a sliding scale, starting at $50 per capita for populations up to 5,000 and rising to a maximum of $1,000,000 ($20 00 per capita for populations up to 50,000). Under the Option A, if the total calculated payment (75 cents/acre) exceeds the ceiling, the deductions for other Federal land payments received are taken from the ceiling, not the 75 cents per acre figure

NEW TEXT

In 1988 PILT payments are estimated to be an additional $1.6 million in addition to the $185,000 paid to counties from the 25% gross receipts.

Returns to the U.S. Treasury

Each year the Forest returns money to the U.S. Treasury. The amount returned is the total dollars received from all revenue-producing activities conducted on the Forest In 1988 the Forest returned $675,000 (1982 dollars) to the U S. Treasury ***END NEW TEXT***

Social Resources Units

The Forest Service has sub-divided the Rocky Mountain Region into Social Resource Unit's (SRU). Social Resource Unit's are a framework for assessing social, cultural, and economic interactions with the physical resources. Social Resource Unit's are homogeneous in terms of settlement patterns and natural barriers that separate the area from other areas in Colorado. The Forest is entirely within Social Resource Unit H, (Source Final Rocky Mountain Regional Guide).

This unit is defined by the Continental Divide to the east and the San Juan Mountains Range on the south. The Utah desert isolates the SRU from other units to the west To the north, the Battlement Mesa Divide and the Mesa-Garfield county line separate SRU H from SRU G.

Millions of people use the Forest annually. Visual quality, a pleasant recreation experience, camping, boating, the opportunity to view and hunt wildlife, and to hike in wilderness all contribute to the Forest's attraction The attraction is based mostly on the natural environment.

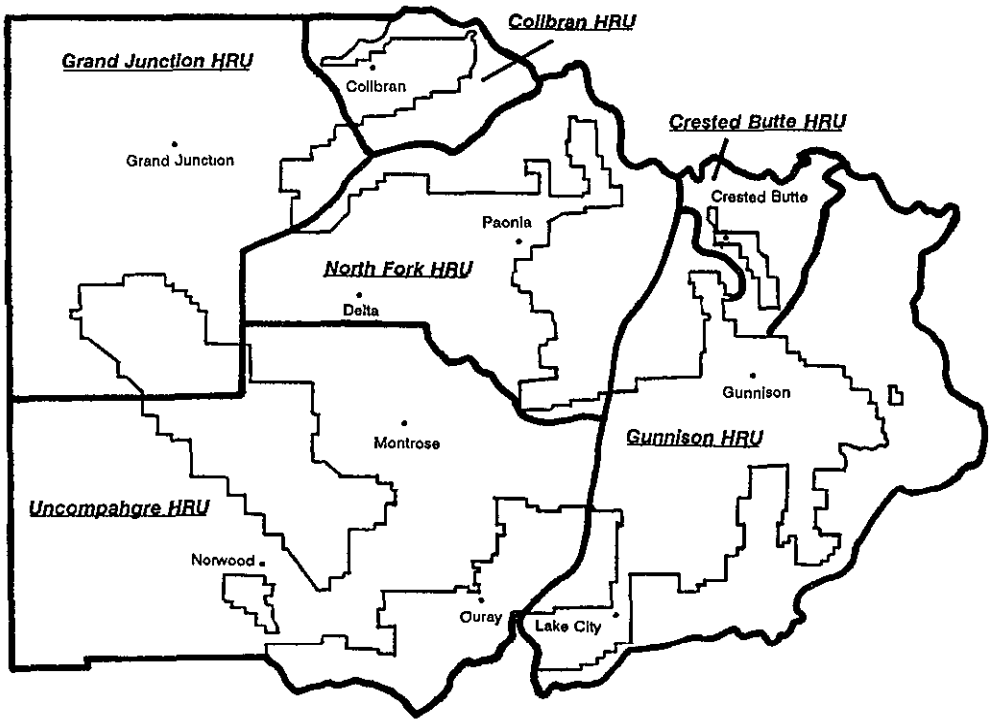
Human Resource Units

The Forest has delineated six smaller units within SRU H. These are called Human Resource Units (HRU) Human Resource Units are used to design management actions that respond to changing conditions at the Forest and Ranger District economic conditions, institutional arrangements, and topography. HRU's vary in size but are typically larger than individual towns and communities, and they may cross political jurisdictions The Collbran, Crested Butte, Grand Junction, Gunnison, North Fork, and Uncompahgre HRU's were identified to help design management actions that would be responsive to local issues, conditions, and needs

The following discussions briefly describes each HRU. General location; settlement; lifestyles; attitudes, beliefs, and values, social organization; and population and land use are described Figure II-3 displays the location of the six HRU's

FIGURE II-3

HUMAN RESOURCE UNITS



Collbran Human Resource Unit

The Collbran HRU is located in the east part of Mesa County known as the "Plateau Valley". Its boundary on the north is the Battlement Mesa divide, on the east Plateau Valley watershed divide with Divide Creek watershed, and on the south Mesa County line. The west boundary is a line between the Grand Valley and Plateau Valley Considerable public interaction exists across this boundary with the Grand Junction Human Resource Unit.

This area was settled in the 1880's by farmers and ranchers. These land use patterns still exist today. Some homesteads have been abandoned, others have consolidated ownership. Ranching is still a basic industry in the area

Some diversity is generated by the Vega State Recreation Area and Powderhorn Ski Area. The downhill ski industry was established at Powderhorn in 1966.

Lifestyles

Ranching is dependent on the National Forest System for livestock grazing. The water resource has been extensively developed in the past for irrigation use Tourism is a significant employer. Tourists are attracted by recreation opportunities including big game hunting, fishing, and downhill skiing primarily on National Forest System land. Downhill skiing is centered around the day use Powderhorn Ski Area Oil and gas exploration personnel work in the HRU on a seasonal basis

Attitudes, Beliefs, and Values

This unit is ranching oriented Interest and concern about land and resource management, especially water and grazing, is high Public issues were raised opposed to additional wilderness designation or additional road construction

Social Organization

The Collbran HRU is rural and sparsely settled. Limited fire, law enforcement, search and rescue, medical, local news media, and local planning services are available in the area. Education through high school is available. Most residences travel outside the unit, to Grand Junction, for the majority of their purchases

Population and Land Use

Agriculture continues to be a dominant land use Private land holdings within the Forest are used primarily for ranching and grazing. The 1980 census shows a 30% growth rate for the Collbran division of Mesa County for the period 1970 to 1980

Social Change

Some significant social change may take place in this HRU regardless of Forest Service action. These changes are due to energy and minerals development

Crested Butte Human Resource Unit

The Crested Butte HRU is located in the north central part of Gunnison County where the Elk Mountain Range forms the Forest and County boundary. It is essentially the East River drainage including Ohio Creek and part of the Spring Creek drainage.

Prior to 1860, the county was unexplored and used as a summer hunting ground by the Ute Indians. In 1861 gold was discovered in Washington Gulch In 1872 Silver was discovered in the Elk Mountains The area has a history of gold, silver, and coal mining. The railroad arrived in 1881. In 1952 the last coal mine closed and railroad service ended. The area was revived in 1964 with the development of a downhill ski area. This has established a new economic base for the HRU. By the early 1970's it brought new prosperity to Crested Butte. The resort community of Mount Crested Butte has formed at the Crested Butte Ski Area

Mining could become a significant element in this HRU. Exploration for the proposed Mount Emmons mining project began in 1974. The company has discovered a large molybdenum deposit in Mount Emmons (Source Mount Emmons Mining Project, Final EIS, October 1982)

Lifestyles

Ranching and tourism are dependent on National Forest System land Summer recreation emphasized fishing, boating, picnicing, and camping Four-wheel drives are popular Downhill skiing is centered at Crested Butte Cross-country skiing and snowmobiling occurs throughout the high country surrounding Crested Butte. The water resource is important for irrigation, snow making, and domestic use.

Attitudes, Beliefs, and Values

Public issues indicate local opposition to minerals development and the effect growth will have on water quality and big game populations

Social Organization

The Crested Butte HRU is a rural unit centered around the ski area. Limited fire, law enforcement, search and rescue, medical, local news media, local planning, and commercial trade services are available Education is available through high school. Most residents travel outside the unit for major purchases

Population and Land Use

Crested Butte is one of the most sparsely populated HRU's surrounding the Forest The population is located around Crested Butte and Mount Crested Butte.

The 1980 census shows a 237% growth for the Crested Butte division of Gunnison County for the period 1970 to 1980

Social Change

Some significant social change may take place in this HRU regardless of Forest Service action These changes are due to minerals development

Grand Junction Human Resource Unit

The Grand Junction HRU is located at the confluence of the Gunnison and Colorado Rivers. The south border follows the Mesa-Delta County line to the point where the boundary changes to the Mesa-Montrose County line to the State line (omitting the Manti-LaSal National Forest) The west boundary follows the State line to the Mesa-Garfield County line. The north boundary follows the Mesa-Garfield County line. The east boundary is a line between the Grand Valley and Plateau Valley. Considerable public interaction exists across this boundary with the Collbran HRU.

The original settlers migrated in the 1880's from the east into the Colorado and Gunnison River Valleys Water, climate, and protection provided by the surrounding mountains and plateaus helped establish the farming and ranching industry. The railroad was extended from Denver and Salt Lake City to the Grand Valley in the 1880's. This turned the area into a major distribution center by the turn of the century. This increased the market for agricultural production and the need for more workers

Lifestyles

Support services and light industry are the major employers in the area The population is in the middle to slightly younger age group. A secondary employer is ranching and farming. The Forest's water resource is important for irrigation and domestic use Summer recreation focusses on fishing, camping, four-wheel driving, hiking, and other opportunities on National Forest System land.

Attitudes, Beliefs, and Values

This unit is being urbanized. Public issues indicate concern for continued opportunity for camping, fishing, snowmobiling, and cross-country skiing. Issues were also raised concerning water and mineral development on grazing and wildlife. Interest in land and resource management is high.

Social Organization

Full service fire, law enforcement, search and rescue, medical, news media, planning, and commercial trade services are available Elementary and secondary school education is available through high school. Mesa College provides opportunity for higher education.

Population and Land Use

Grand Junction is an urban area rapidly engulfing the surrounding communities. Growth patterns radiate from the city center along Highway 6 toward Palisade, west toward Fruita, and south along Highway 50 toward Whitewater. The 1980 census recorded a 50% growth rate for the period 1970 to 1980. This is the most densely populated HRU in SRU "H" and includes approximately one-half of its population.

Social Change

Some significant social change may take place in this HRU regardless of Forest Service action. These changes are due to energy and minerals development.

Gunnison Human Resource Unit

The Gunnison HRU contains most of Gunnison County. Its east and south boundary is the Continental Divide. From a point near Lake City the boundary runs north along the Uncompahgre HRU boundary through the Big Blue Wilderness to the Gunnison River near Blue Mesa Dam. The boundary continues east through the West Elk Wilderness to Purple Mountain and the East River drainage. The north boundary follows the divide between the White River and the Gunnison National Forest.

Settlement at Lake City began when gold and silver were discovered In 1877, it was unrivaled in population and size on the Colorado West slope Lake City was a supply point for Animas Forks, Silverton, Ouray, Mineral City, Capitol City, and other smaller San Juan mining camps Gunnison was incorporated in 1875 In 1881, the Denver and Rio Grande Railroad reached Gunnison. Sargents, Doyleville, and Parlin located along the tracks

Railroad spurs were built to Crested Butte in 1881 and Lake City in 1889 Mining declined near the turn of the century and the Gunnison area economy changed from mining to logging, farming, ranching railroad support, and light industry.

Lifestyles

The majority of the work force is employed in retail trade, tourist related business, agriculture, logging, and education (Western State College). Water is important for irrigation, boating, and domestic use Hunting and fishing are major recreation activities. Recreation visitors provide significant Forest use within the HRU and provide significant impact on the economy.

Attitudes, Beliefs, and Values

Interest and concern in land and resource management is high. The public has a wide spread concern over water use, grazing, wildlife, and preservation of the area in its natural state. The Lake City economy is seasonal and the public believes industrial growth is needed to enhance community growth and stability Public issues were raised opposed to and supporting additional wilderness designation.

Social Organization

The Gunnison HRU is a large mostly rural unit. Full service fire, law enforcement, search and rescue, medical, news media, planning and commercial trade services are available in Gunnison. Limited services are available elsewhere in the unit. Elementary and secondary school education is available through high school. Western State College provides opportunity for higher education

Population and Land Use

Ranching and tourism are the dominant land uses. The 1980 census records a 41% growth rate for Gunnison County for the period 1970 to 1980.

Social Change

Some significant social change may take place in this HRU regardless of Forest Service action. These changes are due to minerals development.

North Fork Human Resource Unit

The North Fork HRU includes Delta, Gunnison, and Montrose Counties. It includes the North Fork of the Gunnison River and Part of the Gunnison River Its boundary on the west and north is the Mesa-Delta County line On the east it is the Raggeds and Ruby Mountain ranges and the Paonia-Taylor River Ranger District boundary line through the West Elk Wilderness. The south boundary includes the Gunnison River and the Montrose-Delta County line

The earliest settlement in the North Fork HRU occurred in the early 1880's and became the basis of a new irrigated agriculture economy Ranchers, farmers, and fruit growers moved into the area to help support the local mining industry. Railroads linked the area with the east and west. The mining industry developed the coal deposits in the North Fork Area

The mining industry decline in the early 1900's forced residents from the mountain communities to the Delta-Cedaredge area. Through the 1930's, agriculture continued to be the leading income source.

Lifestyles

Ranching, farming, fruit growing, and coal mining are the major industries of the area. Ranchers, farmers and fruit growers have interests in National Forest System management as it effects water, grazing permits, demand for farm land for other uses and property values The ranching industry depends heavily on National Forest System for livestock grazing Water has been extensively developed in the past and is an important resource to the ranching, farming, and fruit growing industries.

Seasonal employment makes up a substantial portion of the agricultural employment The fruit growing industry hires many migrant workers each season

Timber is not a major industry in the HRU, however there remains a steady demand for timber products The HRU processes 15% of the timber volume sold by the Forest.

A large percentage of the farmers and ranchers also hold jobs at the coal mines. Most farms and ranches are too small to be self-sufficient. These workers may spend their vacations and weekends working on their farms and ranches. Mine shutdown programs put many employees out of work at one time.

Forest land within this HRU receives considerable outdoor recreation use. Many recreationists come from the Denver area. The major summer recreation activities are water related. About half of the 103 lakes on Grand Mesa lie within the HRU. Island Lake, Ward Lake, and Crawford and Paonia Reservoirs are the most popular. There are a large number of private summer home developments around many of the lakes on the Grand Mesa.

Attitudes, Belief, and Values

There are two resident groups in this HRU. The first group are the ranchers, farmers, fruit growers, and miners. They value the agricultural lifestyle and available open space. Public issues indicate these residents do not want change The second group are new miners, retired people, and businessmen that recently arrived in the area. They tend to support growth and diversity.

Social Organization

The North Fork HRU is rural Full service fire, law enforcement, search and rescue, medical, news media, planning, and commercial trade services are available in Cedaredge, Crawford, Delta, Hotchkiss, and Paonia. Education is available through high school A vocational school in Delta provides the opportunities for trade education Many residents travel outside the unit to Montrose and Grand Junction for major purchases.

Population and Land Use

Agriculture continues to be the dominant land use in the HRU. Private land within the National Forest is used primarily for ranching and grazing The 1980 census shows a 39% growth rate for Delta county for the period 1970 to 1980

The Cedaredge-Orchard City area is presently growing at a faster rate than the county. Twelve new subdivisions have been annexed in the last ten years The 1980 census shows a 70% rate for this area for the period 1970 to 1980 Approximately 50% of the new residents arrive from outside the region Agricultural land east and south of Delta is being developed for residential use.

Social Change

Some significant social change may take place in this HRU regardless of Forest Service action. These changes are due to energy and minerals development, primarily coal mining and oil and gas exploration and development.

Uncompahgre Human Resource Unit

The Uncompahgre HRU includes the Uncompahgre and San Miguel River drainages. The west boundary is the Colorado-Utah State line. The north boundary follows the Delta-Montrose County line and the Gunnison River to a point near the Blue Mesa Dam. The boundary continues south across private and BLM land, along a divide to the Hinsdale-Ouray County line in the Big Blue Wilderness. On the south the boundary follows the Uncompahgre-San Juan National Forest boundary and the San Miguel-Dolores County line to the Colorado-Utah State line.

The earliest settlers were the Ute Indians They are the only tribe indigenous to the basin The first white settlers arrived in 1874 Fort Crawford was constructed for their protection. Settlement began in the mining areas in the San Juan Mountains These communities included Ouray and Telluride. Many other towns where developed near the mining areas, but were deserted when the mineral resources were depleted. Montrose grew as a trade center. It continued to prosper after the mining decline Commercial development in Montrose follows U S Highways 50 and 550

In the 1960's, recreation stimulated interest in the old mining communities at Ouray and Telluride. Growth is steady and the demand for land continues to increase real estate prices

The Uranium Mine in Uravan revitalized the Norwood/Naturita area in the 1970's.

Lifestyles

The majority of the labor force is employed in retail and wholesale trade and government. Skilled trades and professional personnel make up a large part of this group. Most employment is located near Montrose Although timber is not a major industry in this HRU, there remains a steady demand for timber products. The Montrose HRU proccesses 62% of the timber volume sold by the Forest.

A labor force is centered around the recreation use of the Uncompahgre National Forest near Telluride and Ouray; and the Black Canyon of the Gunnison National Monument. Telluride is a major destination ski resort Ouray bills itself as the "Little Switzerland", a major summer resort area A jeep tour business with national importance exists between Ouray and Telluride.

The HRU offers year round recreation opportunities. Summer recreation emphasizes camping, backpacking, sightseeing, fishing, boating, and picnicking. High use areas include the Uncompahgre Plateau, Miramonte Reservoir, Silver Jack Reservoir, and the Black Canyon of the Gunnison National Monument Three wilderness areas are located in the unit The area is highly accessible in the summer months, especially to off-road vehicles. Heavy winter snow provides good downhill skiing at Telluride

Attitudes, Beliefs, and Values

The attitudes and beliefs of the public in the HRU are diverse The attitudes of the mining industry are different from those of the downhill ski industry The attitudes of the agricultural community are different from those of the recreationist. The retired public voices a strong opinion concerning land use. Issues show concern for grazing, wildlife, watershed, skiing, four-wheel driving opportunities, and orderly development.

Social Organization

The Uncompahgre HRU is a mostly rural unit. Montrose is the commercial center for the unit. Limited-to-full fire, law enforcement, search and rescue, medical, news media, planning, and commercial trade services are available in Montrose, Norwood, Ouray, and Telluride. Education is available through high school.

Population and Land Use

The Uncompahgre HRU contains a number of smaller communities. The Montrose-Olathe area is the regional center, It contains the largest portion of the population Initially the economy revolved around agriculture. Now it is diversifying its economic base to include light industry, tourism, and agriculture as well as the waferboard processing plant. There is a substantial population of retired residents who have moved to the area because of its stability and unpolluted natural resources The 1980 census shows 40% growth rate for the period 1970 to 1980

The Norwood, Naturita, and Nucla area is isolated from the populated area. This area is primarily mining oriented The depressed uranium market has affected this area to the point that several mills have closed The communities are anxious to strengthen and diversify their economy. The 1980 census shows an 8% growth rate for the period 1970 to 1980

The Telluride and Ouray area is also isolated from the populated area This area is primarily mining and tourism oriented Telluride has a large development potential related to the Telluride Ski Area expansion. The 1980 census shows 50% growth rate for the period 1970 to 1980

Social Change

Some significant social change may take place in the HRU regardless of Forest Service action. These changes are due to energy and minerals development, primarily coal, gold, silver, and molybdenum mining

PAST AND CURRENT MANAGEMENT AND SUPPLY POTENTIAL

The capacity of the Forest to provide outputs, goods and services is directly related to management of the resource elements and support activities described in the following section. These resource elements are the same ones used in developing the National Assessment and Renewable Resources Program (RPA)

Table II-1 compares the resource production and use levels that would be provided by implementation of the Forest Plan with current management, demand trends, and maximum resource benchmark outputs, where appropriate. The following defines the levels portrayed in the table.

Current Management The level of outputs and uses provided by presently approved resource plans. This level indicates what could be attained on a resource-by-resource basis, looking strictly at individual resource plans with no attempts to resolve conflicts In the case of recreation and wilderness outputs, current management is the theoretical capacity of developed sites, dispersed areas and wildernesses rather than expected use. Wilderness outputs for other than recreation have been included within the other activities such as wildlife, livestock grazing and water yield.

Demand Trends Level of outputs, uses, and services expected to be needed or desired in the future.

Maximum Resource Benchmark Outputs (Max BM) - The estimated maximum level of a given resource output that the Forest can supply

Forest Plan Objectives The estimated output schedule through year 2020 with Plan implementation

NEW TEXT **TABLE II-1: CURRENT ANNUAL OUTPUTS, PROJECTED DEMAND, SUPPLY POTENTIAL**

Activity	Category	Unit of Measure	1990	1991 to 2000	2001 to 2010	2011 to 2020
National Forest Big Game Hunting	Current Mgmt	MRVD	307	338	360	360
	Demand Trends		*	*	*	*
	Max BM			381	404 5	407 8
	Plan Objectives			338	360	360
Permitted Grazing Use	Current Mgmt	MAUM's	247	333 3	333 3	333 3
	Demand Trends			*	*	*
	Max BM			501 7	503 0	501 2
	Plan Objectives			335 8	335 8	335 8
RECREATION						
Developed Use	Current Mgmt	MRVD	550	778	866	924
	Demand Trends			812	968	1124
	Max BM			3912	3912	3912
	Plan Objectives			778	866	924
Dispersed Use	Current Mgmt	MRVD	1514	1794	2168	2543
	Demand Trends			1794	2168	2543
	Max BM			4549	4846	5049
	Plan Objectives			1794	2168	2543
Downhill Skiing Use	Current Mgmt	MRVD	525	502	689	876
	Demand Trends			502	689	876
	Max BM			3168	3168	3168
	Plan Objectives			502	689	876
Wilderness Use	Current Mgmt	MRVD	194	223	268	322
	Demand Trends			223	268	322
	Max BM			467	467	467
	Plan Objectives			223	268	322

Activity	Category	Unit of Measure	1990	1991 to 2000	2001 to 2010	2011 to 2020
Water Yield	Current Mgmt	MMAF	2 87	2 88	2 89	2 89
	Demand Trends			*	*	*
	Max BM			2 90	2 91	2 93
	Plan Objectives			2 88	2 88	2 89
Fishing	Current Mgmt	MRVD	245	304	324	344
	Demand Trends			254	301	301
	Max BM			NA	NA	NA
	Plan Objectives			304	324	344
Timber Program	Current Mgmt					
	Sawtimber	MMBF	22 3	31 5	31 5	31 5
	Aspen POL		3 5	3 5	3 5	3 5
	Conifer POL		1 3	0	0	0
	Demand Trends					
	Sawtimber	MMBF		29 6	29 6	29 6
	Aspen POL			31 0	33 2	33 2
	Conifer POL			4 4	4 7	4 7
	Max BM					
	Sawtimber	MMBF		63 2	63 2	63 2
	Aspen POL			31 6	32 2	32 2
	Conifer POL			21 9	21 4	21.4
	Plan Objectives					
	Sawtimber	MMBF		21 0	21 0	29 6
	Aspen POL			15 0	15 0	15 0
	Conifer POL			2 4	4 4	4 4

* Indicates that demand is at least 100% of available outputs that could be produced

MRVD = Thousand Recreation Visitor Days
MAUM's = Thousand Animal Unit Months
MMAF = Million Acre Feet
MAUM = Thousand Animal Unit Months
MMBF = Million Board Feet

END NEW TEXT

RESOURCE ELEMENTS

The following describes the current Forest management situation by resource and support elements. These are the same elements used in the 1974 Forest and Rangeland Renewable Resources Planning Act The elements are part of a very complex system with numerous interactions, and are described individually only to emphasize important aspects of the current situation in some type of organized framework. The elements must be conceptually combined in order to understand the overall current situation on the Forest.

Management activities affect a variety of resources, and decisions are made only after considering the entire set of ramifications involved Similarly, single management activities are actually designed to serve a variety of resource objectives For example, treating lodgepole pine stands with small clearcuts to reduce future insect susceptibility and provide wood products may provide additional wildlife habitat Water developments are designed to serve the needs of certain wildlife species as well as domestic livestock Roads are located to efficiently transport logs from a timber sale area to the mill, but these same roads could be designated to provide access for hunting, firewood gathering, and other recreation activities

Recreation

Recreation is a major Forest use An estimated 2.2 million recreation visitor days (RVD's) were recorded in 1980 This has increased to 2.9 MMRVD's by 1989

The *1981 Colorado Outdoor Recreation Plan* (SCORP) identified three recreation activities that the Forest Service in the Region 10 Planning Area should provide additional opportunities for; they are picnicking, four-wheeling and downhill skiing

NEW TEXT

Developed Recreation

Existing developed sites on the Forest include 5 observation sites, 62 family campgrounds, 8 family picnic grounds, 2 group picnic ground, 2 organization camps, 5 privately owned resorts, 1 concession site, 2 information sites, 4 boating sites, and 12 recreation residence sites These developed recreation sites can support approximately 744,000 RVD's There are a few private campgrounds near the Forest Approximately 80% of the developed recreation use occurs at recreation sites on the Forest

Use in 1980 of National Forest System developed recreation sites was approximately 578,000 RVD's annually Some sites are more popular and receive more use than others. Currently, developed recreation demand exceeds capacity in the Telluride area and along Taylor River and the Taylor Park area Over the last ten years, developed use has increased at a greater rate than the public sector
END NEW TEXT

Demand is increasing for all types of developed recreation National Forest System developed recreation use is increasing at approximately 2 7% per year. At this rate demand for National Forest System developed recreation will exceed supply after 1990 Table II-2 displays average annual developed recreation demand for the 50-year planning horizon.

There are more than enough potential development sites inventoried on the Forest to meet demand through 2030, if enough budget were available to construct the necessary new sites and it was a goal of the Forest

NEW TEXT **TABLE II-2**

RECREATION DEMAND (RVD'S Per Year)

	1986	1988-1997	1998-2037
DEVELOPED RECREATION:			
Camping	474,400	536,404	618,238
Day Use	267,100	302,010	348,085
Total	**741,500**	**838,414**	**966,323**
DISPERSED RECREATION:			
Hunting	265,300	318,575	374,598
Fishing	204,400	239,659	286,671
Off-Road Motorized	485,600	549,068	632,834
Other	116,700	132,447	153,435
Total	**1,072,000**	**1,239,749**	**1,447,538**

Downhill Skiing

The three downhill ski areas on the Forest supported 222,000 RVD's during the 1980 season. This has increased to 542,700 RVD's in 1989. Capacity in 1980 on the three ski areas was 737,592 RVD's. Table II-3 displays the existing and potential capacities for the three ski areas and the possible expansion of the Monarch Ski Area. The ski areas have a potential capacity of 3.04 million RVD's. Crested Butte, Powderhorn, and Telluride have approved master plans. The Crested Butte master plan includes expansion onto Snodgrass. ***END NEW TEXT****

Demand for downhill skiing has increased. With the projected annual growth rate of 8.4%, downhill skiing use will account for 50% of the Forest's developed recreation use by the year 2010. Downhill skiing use is expected to reach 1,063,000 RVD's annually by year 2030. Crested Butte, the Monarch expansion, Powderhorn, and Telluride have potential capacity to supply downhill skiing opportunities to meet projected demand through 2030. Table II-4 displays the average annual demand for downhill skiing on the Forest

Demand projections were developed using trend line analysis. As additional data becomes available demand projections may be revised.

NEW TEXT **TABLE II-3**

DOWNHILL SKI AREA CAPACITY

Capacities-Skiers at One Time (SAOT) and Recreation Visitor Days (RVD)	Crested Butte	Monarch	Powder-horn	Telluride	TOTAL
Potential Capacity					
SAOT	10,700	5,400	4,500	15,000	35,600
RVD	902,812	437,500	368,438	1,331,250	3,040,000
Existing Capacity					
SAOT	4,050	0	1,800	2,800	8,650
RVD	341,717	0	147,375	248,500	737,592
Total Approved Master Plan Capacity					
SAOT	10,700	0	4,500	15,000	30,200
RVD	902,812	0	368,438	1,331,250	2,602,500

END NEW TEXT

TABLE II-4

DOWNHILL SKIING DEMAND (M RVD'S Per Year)

	1986-1990	1991-2000
Skier Demand	362	502

The Forest retains downhill skiing opportunities on eight potential sites by utilizing management activities compatible with their long-term future as downhill ski areas Existing area expansion is encouraged over new site development. The Forest does not actively encourage new development, but responds to proponent interest on an individual basis Table II-5 displays the potential ski sites using the four-level Priority System disclosed in the Regional Guide This priority system facilities land management allocation decisions and guides development scheduling of allocated winter sport sites

TABLE II-5

POTENTIAL SKI SITES (Source: Regional Guide)

Area	Regional Priority
Mt. Axtell	1
Salt Creek	2
Wilson Ridge	2
Carbon Peak	3
Double Top	3
Rambouillet - Slumgullion	3
Twin Peaks	4
Park Cone Mountain	4

Dispersed Recreation

The Forest provides opportunities for a wide variety of dispersed recreation activities Total dispersed recreation capacity is approximately 10.2 million RVD's annually The Forest can supply 847,560 RVD's of semi-primitive non-motorized recreation use and 2,637,154 RVD's of semi-primitive motorized recreation use each year.

These supplies are taken from the existing Recreation Opportunity Spectrum (ROS) Class calculations and are assumed to be constant for the 50-year planning horizon Some increase in capacity would be created with the addition of access required for vegetation treatment during this time. However, this increase is believed to be less than 10%.

Dispersed recreation use for 1980 was 1.2 million RVD's Most use occurs along and adjacent to roads Non-motorized use is expected to increase faster than motorized use. The current use by ROS class is displayed in Table II-6 Current acres by ROS class are displayed in Table II-7.

TABLE II-6

1980 RECREATION USE SUMMARY

ROS Class	RVD's
Urban, Rural and Roaded Natural	696,300
Semi-primitive motorized	492,900
Semi-primitive non-motorized	45,500
TOTAL	1,234,700

TABLE II-7

CURRENT ROS DISTRIBUTION

ROS Class	Acres
Semi-primitive motorized	1,265,186
Semi-primitive non-motorized	816,799
Primitive	217,930
Urban	1,066
Rural	33,021
Roaded Natural	619,184

About 125 permits are issued annually for outfitters and guides on the Forest. Outfitting for big game hunting is the predominant activity. This is considered a dependent industry with Forest use essential to its survival. the Forest manages these permits in accordance with the Forest Service Manual and the Forest's Interim Outfitter Guide Policy. New national policy is being developed When adopted the Forest policy will be modified to be in conformance.

Current direction will increase opportunities for motorized recreation However, some roads are closed or their use restricted to protect resource values, reduce maintenance budget requirements and to meet other resource objectives. A discussion of travel management is displayed in the Facilities section of this chapter

The Forest currently has 1,647 miles of system trails, Inadequate maintenance on the trail system hinders dispersed recreation use

Factors such as population growth, leisure time, and energy costs will affect dispersed recreation use. Dispersed recreation demand will continue to increase faster than developed recreation. As travel expense increase, the amount of dispersed recreation on the Forest by local residents will increase The Forest can supply all of the demand for dispersed recreation opportunities.

There is more demand for winter dispersed recreation facilities (i.e. maintained trails, signing, sanitation facilities) than facilities provided

Continental Divide National Scenic Trail

The National Parks and Recreation Act, November 10, 1978; established the Continental Divide National Scenic Trail Corridor. One hundred and thirty miles of this trail corridor are on the Gunnison National Forest. Of the 130 miles, 83 or 64% cross land which offers primitive or semi-primitive non-motorized recreation opportunities Nineteen miles or 14% cross land which offers semi-primitive motorized recreation opportunities, and 28 miles or 22% cross land which offers roaded natural recreation opportunities.

The Forest has identified the trail on the Gunnison National Forest Specific description of the trail location are contained in the Forest planning records The San Isabel National Forest is currently studying a corridor for the trail from Cottonwood Pass to Monarch Pass The Gunnison National Forest has designated the trail from Cottonwood Pass to Tincup Pass The trail has not been designated from Tincup Pass to Monarch Pass The San Isabel National Forest will study further the Cottonwood Pass to Monarch Pass section of the Continental Divide National Scenic Trail

The Proposed Domiquez - Escalante National Historic Trail

The proposed trail crosses the Uncompahgre Plateau and the Grand Mesa. This route was designated by Congress for study as a National Historic Trail. A Draft EIS was prepared by the National Park Service. The Forest Service response was to recommend "high potential segments" be identified a National Historic Trail and location criteria be developed A Final EIS has been completed and submitted to the Environmental Protection Agency The administration recommends that no Federal action be taken at this time due to the general lack of public support for the trail and the present national budgetary constraints (Source: Dominguez-Escalante Final National Trail Study)

National Recreation Trails

The Forest has three National Recreation Trails The Crag Crest National Recreation Trail is 11 miles long and follows the Grand Mesa ridge The Crag Crest National Recreation Trail for cross-country skiing is 7 5 miles long in the Scales Lake Area The Bear Creek National Recreation Trail is six miles long in the rugged mining country near Ouray

Wild and Scenic Rivers

The Forest planning process included two Wild and Scenic River Eligibility Reports Reports were prepared for the East River and the Taylor River They were listed as potential Wild and Scenic Rivers by the Heritage Conservation and Recreation Services (now with the National Park Service) in its nationwide rivers inventory

The eligibility reports concluded that neither the East River nor the Taylor River are eligible for further consideration for inclusion in the Wild and Scenic River System

Research Natural Areas

One Research Natural Area has been established on the Forest The Forest planning process evaluated and proposed two other areas for management as Research Natural Areas A detailed discussion of these areas is available in the Forest planning records A summary of the three research natural areas follows

--The Gothic Research Natural Area was designated in 1931, expanded in 1959 It is a 1,050 acre ecological research and study area located 10 miles north of Crested Butte

--The proposed Escalante Creek Research Natural Area is a 61 acre blue spruce site It is located in the upper Dry Fork of Escalante Creek

--The proposed Tabeguache Research Natural Area is a 350 acre site containing ponderosa pine It is located nine miles northeast of Nucla.

Special Interest Areas; Cultural and Natural

There are cultural (prehistoric and historic) and natural resources on the Forest. In most cases, the location is kept confidential to protect these resources form vandalism and to preserve them for scientific and educational purposes. The Forest's historic overview is complete in three volumes prepared jointly by the BLM and Forest. Work is proceeding on the prehistoric overview Until the prehistoric overview is finished, data will be adapted from the completed BLM prehistoric overview of the surrounding areas.

Approximately 448,000 acres, 15% of the Forest, have been surveyed for cultural resources Cultural resource surveys take place before any vegetation treatment activities. Vegetation treatment increases the opportunities for significant cultural resource discovery.

Two natural special interest areas are managed on the Forest. The Forest planning process examined the records on 15 other areas for management as special interest areas. A detailed discussion of the areas is located in the Forest planning records. A summary of the examination results of the 17 special interest areas follows.

Dry Mesa Dinosaur Quarry Paleontological Site

The quarry is a 40 acre site located within the Jurassic Morrison formation and contains fossils with a geologic age of approximately 150,000,000 years This quarry is located 26 miles southwest of Delta. Excavation activity has yielded remains of many different kinds of extinct animals including partial skeletons of animals not previously known to science

Slumgullion Earthflow National Natural Landmark

The earthflow is a natural geologic process associated with the erosion of unstable geologic and soil features It includes approximately 900 acres of BLM land, 300 acres of National Forest System land, and 100 acres of private land It is located two miles south of Lake City It is designated a National Natural Landmark and is listed in the National Registry of Natural Landmarks It is not a registered landmark since all owners have not agreed to protect its value. The Colorado Natural Areas Program has also designated the earthflow as a Colorado Special Interest Area.

Proposed Ophir Needles National Natural Landmark

The Ophir Needles is a geologic formation formed by alpine erosion etching out spectacular topographic spires from highly pointed intrusive rock. This intrusive cuts sharply across a varied sequence of sedimentary and volcanic rocks, and the discordant contracts are exceptionally displayed over a vertical range of about 1,000 feet. This formation is 10 miles southwest of Telluride. Ophir Needles is being nominated by the National Park Service for inclusion in the National Registry of Natural Landmarks

Natural Special Interest Areas Being Studied

Eleven potential National Natural Landmarks will be studied by the National Park Service to determine their eligibility. They include· Cochetopa Park Caldera, Elk Mountains, Fossil Ridge, Lizard Head Pass, Mount Bellview, Mt Sneffels, Potosi Peak, The Castles, Tomichi Dome, and Waunita Hot Springs Gothic Research Natural Area is also being studied for dual designation as a National Natural Landmark by the National Park Service

The Mt. Emmons Iron Bog will be protected from activities detrimental to its maintaining the habitat of *Drosera Rotundifolia L.* This is a small carnivorous round leaf sundew plant located in peaty or wet, acidic soils.

Natural Special Interest Areas Rejected

Three areas have been studied by the National Park Service and determined to be ineligible for the National Natural Landmark's registry. These include: Black Face; Lizard Head; and San Juan, Silverton and Lake City Caldera Complex

Proposed Alpine Tunnel Historic District

The district is approximately 60 acres of National Forest System land. It consists of three non-contiguous parcels of railroad that were built as part of the Denver, South Park, and Pacific Railroad With the tracks reaching 11,523 foot elevation, the Alpine Tunnel became the highest section of railroad in the world. The Palisades parcel is known for its use of cribbing to stabilize the narrow points of the railroad route. The district is located approximately 40 miles east of Gunnison. The Alpine Tunnel has been nominated to the National Register of Historic Places.

Proposed Englehart Park Archeological District

The district is 664 acres of National Forest System land. It contains nine prehistoric sites and twenty-six prehistoric isolated finds Englehart Park Archeological District has been nominated to the National Register of Historic Places. The Forest's recommendation is that it be protected by avoidance until agreements are made to interpret or study the area

Visual Resource

The Rocky Mountain Region has been divided into three geographic areas for visual resource planning These areas are: The Southern Rocky Mountains, Central Rocky Mountains, and Great Plains. Each province is divided into ecological land units that have similar landform, vegetation and soil characteristics. These units function as landscape character subtypes These subtypes are a frame of reference in classifying the physical features of an area into variety classes

The Forest is in the Southern Rocky Mountain physiographic province and includes eight landscape character subtypes

The number of landscape character subtypes makes the Forest visually complex. Visual resource management includes reducing undesirable contrast and retaining or creating natural-appearing variety in the landscape. To accomplish this requires that particular attention be paid to the form, line, color, and texture associated by management activities On the non-forested land, the line, color, and structure placement are especially important. In the forested areas the visual impact on landscape character and variety is critical.

The majority of land on the Forest is visible in middleground and background views from the mountain valleys. Vegetation treatment increases ecological diversity. This usually enhances scenic beauty as long as the treatments emulate natural growth patterns and shapes in the surrounding landscapes.

Wilderness

The Forest administers all or portions of eight wilderness areas. These areas are displayed in Table II-8.

TABLE II-8

DESIGNATED WILDERNESS (Grand Mesa, Uncompahgre, and Gunnison Acres Only)

Wilderness	System Acres
Big Blue	98,235
Collegiate Peaks	48,961
LaGarita	79,822
Lizard Head	20,342
Maroon Bells-Snowmass	19,598
Mount Sneffels	16,200
Raggeds	42,527
West Elk	176,092
TOTAL	501,777

Kannah Creek, Roubideau, and Tabeguache were listed suitable for inclusion in the National Wilderness Preservation System in the RARE II Final EIS Section 107(b) (2) of the Colorado Wilderness act released these areas from further analysis for wilderness in this Plan

Recreation settings within wilderness are categorized pristine, primitive, semi-primitive, and high density day use The settings consider area size, trail use, the influence of human activity within and outside the wilderness opportunity for solitude, and potential for encountering other users

Pristine wilderness recreation settings offer very high levels of solitude, very high opportunities for challenge, risk, and self-reliance Trail and camp encounters will generally be very low, 0 to 2 other parties per day Primitive wilderness recreation settings offer high levels of solitude, high opportunities for challenge, risk, and self-reliance Trail encounters will generally be low, less than five other parties per day Semi-primitive wilderness recreation settings offer moderate levels of solitude, moderate opportunities for challenge, risk, and self-reliance Trail encounters will generally be moderate to high, 5 to 20 other parties per day. High density recreation settings offer low levels of solitude, low opportunity for challenge, risk, and self-reliance Trail encounters will generally be high, greater than 20 other parties per day

Oh-Be Joyful Wilderness Study Area

The RARE II Final EIS listed Oh-Be-Joyful unsuitable for wilderness It was listed a Wilderness Study Area in the Colorado Wilderness Act A Draft EIS for Oh-Be-Joyful Wilderness Study Area was transmitted to the Environmental Protection Agency on June 4, 1981 The Forest Service preferred alternative in the Draft EIS is unsuitable for inclusion in the National Wilderness Preservation System The administration is currently completing the Final EIS If Congress does not act within two years from the date of submission of a President's wilderness recommendation to Congress, the area will be managed non-wilderness

Two years have passed from the date of the President's recommendation and Congress has not acted on the Oh-Be-Joyful Wilderness Study Area. The area has now been released for multiple use purposes.

Existing Wilderness

About 17% of the Forest, 501,777 acres, is designated wilderness. Of this total; 416,043 acres were designated wilderness by the Colorado Wilderness Act.

This Plan displays management direction for the five wildernesses on the Forest. Table II-9 displays current wilderness use for the five wilderness areas. Capacity of the five wilderness areas is approximately 418,000 wilderness recreation visitor days (RVD's).

TABLE II-9

1980 WILDERNESS USE

Wilderness/Forest	MRVD's*	Trail Miles	MAUM's*
BIG BLUE			
Uncompahgre	52 4	250.0	5 6
LA GARITA			
Gunnison	9.2	120.0	2.3
Rio Grande	22.4	47.0	1.1
MOUNT SNEFFELS			
Uncompahgre	10.9	60.0	.7
RAGGEDS			
Gunnison	12 3	80.0	1 8
White River	1.2	14.5	.6
WEST ELK			
Gunnison	56.0	220 0	9.0
TOTAL	164 4	791.5	21.1

*MAUM's = Thousand Animal Unit Months.
MRVD's = Thousand Recreation Visitor Days projected back to 1980 use for each wilderness (Recreation Base Year is 1980)

Future wilderness use can be expected to rise during the next decade at nearly the historic rate of increase Changes in this rate beyond the next few years will depend on factors such as travel costs and leisure time. Grazing use is expected to remain steady Table II-10 displays average annual wilderness demand over the planning horizon.

TABLE II-10

WILDERNESS DEMAND (M-RVD'S Per Year)

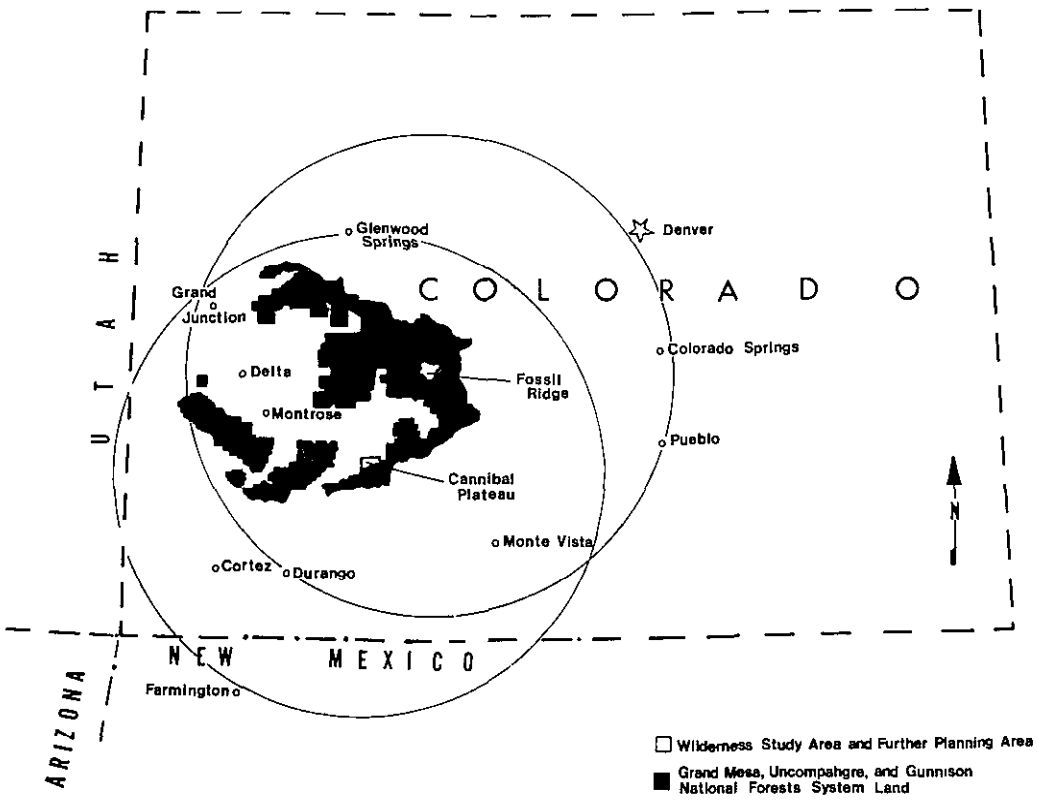
	1991-2000	2001-2010
Wilderness Demand	223	268

Wilderness Study Area and Further Planning Area

There are two areas eligible for wilderness suitability analysis on the Forest. Figure II-4 displays the general vicinity and major population centers within a 100 mile radius of Fossil Ridge Wilderness Study Area and Cannibal Plateau Further Planning Area.

FIGURE II-4.

FOSSIL RIDGE WILDERNESS STUDY AREA AND CANNIBAL PLATEAU FURTHER PLANNING AREA VICINITY MAP
(The circles display communities within 100 miles of the Study Areas.)



The Fossil Ridge Wilderness Study Area is located in Gunnison County, Colorado, about 8 miles northeast of Gunnison and 125 air miles southwest of Denver It is roughly located between Taylor Canyon and Union Park on the north and east, and Quartz Creek on the south

The Cannibal Plateau Further Planning Area is located in Hinsdale County, Colorado, approximately 3 air miles east of Lake City and 160 air miles southwest of Denver The area is located immediately adjacent to the BLM's Powderhorn Primitive Area The Primitive Area, containing 40,480 acres, was formally designated by the Secretary of the Interior in August, 1973 In the BLM Wilderness Study, Powderhorn Primitive Area was identified an Instant Study Area A Draft EIS, which identified Powderhorn Primitive Area plus an additional 4,471 acres (44,951 acres total) suitable for wilderness classification, has been prepared. This primitive area has been recommended for classification as the Powderhorn Wilderness

Fossil Ridge Wilderness Study Area

The RARE II Final EIS listed Fossil Ridge unsuitable for wilderness. The Colorado Wilderness Act identified Fossil Ridge a Wilderness Study Area (WSA). The Fossil Ridge Wilderness Study area contains 47,400 acres of National Forest System land

The Colorado Wilderness Act required the Secretary of Agriculture to complete a study of the Fossil Ridge Area The Act provides Congress with unlimited time to act on the administration's recommendation of suitability or unsuitability of Fossil Ridge for Wilderness The Fossil Ridge Wilderness Study Report was attached to the 1983 Forest Plan Draft EIS as a separate document and contained more detailed information on the study area

The 1983 Forest Plan Record of Decision recommends the Fossil Ridge Wilderness Study Area to be unsuitable for inclusion in the National Wilderness Preservation System

Cannibal Plateau Further Planning Area

The RARE II Final EIS listed Cannibal Plateau a Further Planning Area The Colorado Wilderness Act retained its designation as a Further Planning Area (FPA)

The 1983 Forest Plan Record of Decision recommends 13,599 acres of the Cannibal Plateau Further Planning Area be suited for inclusion in the National Wilderness Preservation system, and 18,391 acres be allocated to non-wilderness uses

Legislative EIS's were prepared for both Fossil Ridge and Cannibal Plateau based on information and analysis disclosed in the Final EIS for the Forest and analysis of the public hearing records Public hearings were held January 11, 1983, in Gunnison and January 12, 1983, in Denver. The Draft EIS for the Forest was issued on October 25, 1982, for public review and comment. The comment period on the Forest Plan and Final EIS and the Hearing record for the Fossil Ridge Wilderness Study Area, and the Cannibal Plateau Further Planning Area closed on February 19, 1983 Final decisions on wilderness designation have been reserved by Congress

Until Congress acts, the Fossil Ridge Wilderness Study Area, and the 13,599 acres of the Cannibal Plateau Further Planning Area determined to be suited for wilderness will be managed to maintain its existing wilderness character while still permitting existing uses. Livestock grazing and dispersed motorized recreation will continue and range structural improvements can be maintained or constructed

The 18,391 acres of the Cannibal Plateau Further Planning Area determined to to be not-suited for inclusion into the Wilderness Preservation system will be released to non-wilderness management as allowed by the Colorado Wilderness Act (See 1980 Colorado Wilderness Act Section 107 (b) (3))

Fish and Wildlife

Wildlife

The Forests' varied habitat supports 314 wildlife and fish species Of these, 96 species are hunted, fished, or trapped. In 1980, hunting generated 105,200 RVD's and fishing generated 243,200 RVD's. All wildlife uses are expected to increase in the future Habitat management is a joint effort with the Forest and the Colorado Division of Wildlife (DOW). The Comprehensive Statewide Wildlife Management Plan for National Forest System Lands In Colorado (1980-1984), jointly prepared by the Colorado Division of Wildlife and the Forest Service provides further detail on fish and wildlife population estimates and helps to set priorities for wildlife and fish projects

The variety of animals is determined by habitat diversity within the Forest Aspen stands, shrub and grasslands, rock outcrops, cliffs, and riparian areas provide variety to a predominately coniferous forest cover Wildlife habitat diversity is related to vegetation diversity through both its composition and its structural complexity Both the composition and various structural stages are used to determine the overall wildlife habitat diversity

Habitat diversity varies from area to area on the Forest. In general, the lodgepole pine component has the least diversity with a high percentage being in the mature or overmature classification Conversely, in some areas the intermediate stages, poles and immature sawtimber, predominate. The reason for these spatial imbalances of age classes is tied to the fire history in given areas, with timber harvest having been concentrated in the more accessible areas Vegetation treatment through commercial timber harvest, prescribed fire and other management activities can increase habitat diversity.

The structural stages in spruce/fir, Douglas-fir, and lodgepole pine types is similar. In lodgepole, Douglas-fir, and spruce/fir, there is generally a lack of young trees, i e., seedling-sapling.

Of the non-forested habitat types, the alpine is in good condition. Only a few activities, primarily dispersed recreation, affects its wildlife habitat value. The grassland habitat varies in condition with a few areas of livestock-big game competition.

The mountain brush and oakbrush habitat types are of vital significance due to their importance as winter and spring range, principally for deer and elk. A high percentage of this type is overmature and has grown out of reach of wildlife.

Aspen is a major habitat for many wildlife species. Aspen maintenance and regeneration is important for habitat diversity Much of the aspen on the Forest is overmature and in need of regeneration.

Habitat effectiveness is influenced by the amount of human use and activities that occur within the area. The frequency and timing of disturbance are important factors

Terrestrial wildlife habitat can generally be described as either forested or non-forested. Table II-11 displays the percentage breakdown between forested and non-forested habitats by species

TABLE II-11

FORESTED AND NON-FORESTED HABITATS (Percent)

Forested	Percent	Non-forested	Percent
Aspen	37	Oakbrush	40
Ponderosa	5	Mixed Browse	16
Spruce-fir	42	Grass	30
Lodgepole Pine	16	Pinyon/Juniper	9
----------	----	Meadow	2
TOTAL	100	Barren/Rock	1
		Water	2
		----------	-----
		TOTAL	100

Mule deer are found in the forested and open shrub areas at both low and high elevations. They also frequent stream bottoms. They are predominately browsers, but do utilize forbs and grasses at certain times of the year. Elk use semi-open forests, parks, meadows and tundra mountain situations and feed primarily on grasses and forbs during spring and summer months and browse in late fall and winter.

The limiting factor for elk and deer is winter range. Only a small portion of the total winter range for these species is located on National Forest System land. Critical winter range is at lower elevations on BLM and private land The Forest is coordinating with the State and other Federal agencies and private landowners to agree upon manageable herd sizes in relation to the carrying capacity of winter range Cooperative vegetation treatment activities with the DOW in habitat improvement include prescribed burning in oak types and aspen regeneration. Vegetation treatment of a winter range's climax successional stage improves diversity and suitability of the range.

The Forest has the highest deer and elk populations of any National Forest in the United States. These big game species are considered for any action which affects their habitat on National Forest System land The Forest does not intend to increase summer range for increased capacity

NEW TEXT The opportunities to increase carrying capacity for deer and elk through commercial timber sale programs on the Forest are minimal The majority of commercial timber lands lay on the higher and more moist summer ranges while the carrying capacities are limited by the lower and dryer winter ranges Only a small portion (9 48%) of the total winter range in the planning area for big game species is located on National Forest System land, the majority of winter range is on BLM and private land.

Approximately 242,000 acres of critical winter range is on the Forest. The Forest's current carrying capacity (limited by winter range) is 2,033 elk and 5,806 deer and was determined in cooperation with the Colorado Division of Wildlife While many more animals do live on the Forest during the summer months, the Forest's ability to provide year-round habitat is limited to the winter range capacities The estimated current population equals the winter range capacities. ****END NEW TEXT****

While timber sales on summer ranges do not increase carrying capacities for big game they do provide the opportunity to improve the quality of the habitat by increasing diversity and distribution.

Table II-12 shows the relationships that exist concerning winter range and tentatively suited timber lands.

NEW TEXT **TABLE II-12**

WINTER RANGE (Acres)

Total acres winter range in planning area (includes private, BLM, etc.)	3,800,000
Total Forest winter range (9 48%)	360,548
Tentatively suited commercial timber lands on winter range·	
ponderosa pine	44,240
aspen	39,959
Total (23%)	84,199

(Of the 1,253,541 acres of tentatively suited timber lands, seven percent are on winter range) ****END NEW TEXT****

Lodgepole stands where no treatment occurs have low diversity levels. Thick stands of even-age poles block big game movement and greatly limit understory vegetation However, they do provide both hiding and thermal cover.

Deer and elk hunting on the Forest results in substantial contributions to the State and local economies. The number of hunting permits issued each year is controlled by the State. According to the State Comprehensive Wildlife Plan, approximately 24 percent of the elk herd is harvested annually. Harvest figures for deer are not available for the Forest.

Black Bear ranks third among big game species behind mule deer and elk in sport hunting. Females have their first young at age four and only have cubs every other year. It is the only big game animal which hibernates. Black Bear is hunted from the time it leaves hibernation, usually in mid-April to mid-May thru June It is also hunted concurrently with deer and elk until it enters hibernation in mid-October thru November Masts in the oak brush type are important to build fat reserves for winter. Research is being done on the Forest by the Colorado DOW to obtain basic data on this least understood big game species in Colorado

Rocky Mountain bighorn sheep are present on six areas of the Forest. Summer ranges at high elevations are mostly within wilderness. The majority of winter range occurs on BLM land The quantity and quality of summer range and migration corridors is currently not optimal for bighorn sheep. Cooperation with DOW is continuing in lungworm treatment through baiting and medication.

Demand for winter range will continue to be an important issue As more critical big game winter range is lost outside the Forest boundary and the demand for deer and elk hunting increases, the Forest will be called upon to improve winter range quality and quantity. The quantity, quality, and location of habitat for bighorn sheep will need to be identified. Big game herd size is constrained, in part, by National Forest System winter range carrying capacity. The Forest will continue to cooperate with the DOW and will provide adequate wildlife habitat.

The Forest does not foresee a significant increase in big game populations due to the limiting factor which is winter range Habitat improvements through vegetation treatment on National Forest will partially off-set habitat loss on private land due to changing land use such as subdivision, fencing orchards and mining exploration and development. These occuring and potential impacts on private land to deer and elk are real and are not controllable by land management agencies or the Colorado DOW

As more human pressure is placed on National Forest summer range, the Forest will be looking at methods to improve it for wildlife. The largest number of elk harvested in the early big game season in 1982 occurred adjacent to some of the clearcuts in the Pieplant area of the Gunnison National Forest. Estimated current and projected wildlife populations of other species is discussed in the Statewide Comprehensive Plan The Forest views big game trends to be slightly upward or close to current populations

NEW TEXT

Fisheries

As part of the National "Rise to the Future" initiative for Forest Service lands, an action plan for fisheries and aquatic habitat management has been prepared for the Grand Mesa, Uncompahgre and Gunnison National Forests. Based on this plan, and subsequent inventories, it is estimated that there are 3657 miles of perennial streams within the Forests' boundaries. In addition to this, there are an estimated 1390 miles of major (named) intermittent streams and another 5815 miles of minor (unnamed) intermittent tributaries associated with these major drainages. These figures are based on the Forests' FY89 aquatic/riparian inventories in which all perennial and named intermittent streams were delineated, catalogued and typed using USGS 7.5 minute topographic maps and aerial photographs The habitat condition of most of these stream miles is unknown at this time, however, previous inventory data indicate that at least 1200 miles of these streams contain viable fish populations consisting primarily of brook, brown and rainbow trout.

The maintenance, improvement and enhancement of riparian and aquatic habitat on National Forest lands is of primary concern to the Forest Service. Proper riparian management is a critical issue on perennial *and* intermittent drainages It is the Forests' intent to manage riparian vegetative communities associated with all aquatic systems, whether perennial or intermittent, to insure the protection of these critical resources and the species dependent upon them The Forests' primary goals for these systems will be to consider the total watershed in a basin-wide approach to managing the resources, and to consider the health of the total system through integrated resource management

Using the FY89 data base, it is estimated that there are 88,654.5 acres of riparian habitat associated with perennial streams, 25,272.7 acres of riparian habitat associated with major intermittent streams and 70,484.8 acres of riparian habitat associated with minor intermittent tributaries. This yields a total of 184,412.0 acres of riparian habitat (10,862 stream miles), which computes to approximately 6 percent of the total land base of the Grand Mesa, Uncompahgre and Gunnison National Forests. These acreages are based on average values of 200 feet for the aquatic/riparian corridor on perennial streams, 150 feet for this corridor on major intermittent streams and 100 feet for minor intermittent tributaries. These estimated data will be ground truthed and verified through follow-up inventories and monitoring beginning in FY90 and carried out until a data base for all the Forests' highest priority streams and riparian systems has been completed Table II-13 shows these values based on FY89 inventories.

TABLE II-13

AQUATIC AND RIPARIAN RESOURCES ASSOCIATED WITH THE GMUG FORESTS

Stream Classes	Stream Miles	Average Riparian Width	Estimated Riparian Acres
1. Perennial	3657	200	88,655
2. Intermittent (major)	1390	150	25,270
3. Intermittent (minor)	5815	100	70,485
TOTALS:	10,862		184,410

Many of the rivers and streams contain self-sustaining fisheries consisting primarily of brook and brown trout. The Colorado Division of Wildlife's regional stocking program helps to supplement the resident populations The primary fish stocked in waters associated with the Gm-Unc-Gunn are Snake River cutthroat, Trappers Lake cutthroat, Pike's Peak cutthroat and rainbow trout at lakes and streams above 9000 feet elevation. Rainbow are the primary species used for stocking below 9000 feet. Brooks and browns are also used for supplemental stocking throughout the Forests. CDOW will continue stocking sub-catchables at the same rate as in the past. However, the stocking program for "catchables" is expected to be expanded in order to comply with CDOW's 5-year strategic plan and to accommodate increased fishing pressure and recreational demands.

The recovery program for the Colorado River cutthroat trout is being carried out Forest-wide in cooperation with the Division. This trout is a state threatened species and the Forest Service and the CDOW are taking action to insure that the species receives priority consideration, by protecting its habitat and reintroducing these fish in selected waters containing suitable habitat. The ongoing inventories will identify streams that are considered suitable for reestablishing Colorado River cutthroat trout populations. The most recent action taken, was to re-introduce these cutthroat into the West Fork of Beaver Creek during the field season of FY89. Follow-up work will continue in FY90.

Recreational demands on the Forests' aquatic and riparian systems are expected to increase in the future. Fishing, camping, OHV use, hiking and other forms of dispersed recreational use are all expected to exert additional demands on the Forests' resources A National Recreational Fisheries Policy was signed by the Chief of the Forest Service and the Director of the Bureau of Land Management in June of 1988 The major emphasis of this policy is to "develop and implement programs through internal and external partnerships to improve the quality and quantity of recreational fisheries on National Forests and on BLM lands consistent with resource capability and user demands".

The demand on the Forests' fisheries, aquatic and riparian resources is expected to increase by 1.8 percent per year and by the year 2000, licensed anglers within the state are expected to increase from 750,000 (1988 estimate) to about 993,877. This constitutes an increase of approximately 32.5% over current levels. In order to handle these increased demands, the Forest Service plans to 1) analyze and report on existing data about recreational fisheries users and identify new data needs, 2) educate resource managers on the diverse needs and values of recreational fisheries users and 3) assure that fisheries and recreation programs and facilities respond to the diverse needs and values of current and potential users. Additional goals are to protect, restore and enhance fish habitats using the most cost-effective tools available, to improve access and amenity opportunities and to encourage use of underutilized areas and re-direct use away from areas with excess fishing pressure. The policy further emphasizes marketing, partnerships and over-all commitment to the resource as methods to be used in managing the aquatic resources

There are approximately 9,360 acres of lakes on the Grand Mesa, Uncompahgre and Gunnison National Forests. To date, these lakes have not been inventoried and their condition cannot be quantified Once the stream inventories have been completed, the next step will be to intensively inventory all the lakes on the Forests to ascertain their condition and use levels, and determine what management practices need to be employed to enhance these resource values. ***END NEW TEXT***

Threatened and Endangered Species

The Endangered Species Act of 1973 requires all Federal departments and agencies to conserve threatened and endangered species. Table II-14 displays the federally or state-designated, threatened or endangered, and plant or animal species that may occur on the Forest The Forest has identified hack sites for the peregrine falcon.

TABLE II-14

THREATENED OR ENDANGERED PLANT OR WILDLIFE SPECIES

COMMON NAME	SCIENTIFIC NAME
American Peregrine Falcon	*Falco peregrinus anatun*
Spineless Hedgehog Cactus	*Echinocereus triglochidiatus var inermis*

Whooping Crane**	*Grus americana*
Greater Sandhill Crane**	*Grus canadensis tabida*
Wolverine***	*Gulo Gulo*
Bald Eagle	*Haliaeetus leucocephalus alascanus*
Lynx***	*Lynx canadensis*
Colorado River Cutthroat*	*Oncorhynchus clarki pleuriticus*
Colorado Squawfish***	*Ptychocheilus lucius*
Humpback Chub***	*Gila cypha*
Razorback Sucker***	*Xyrauchen texanus*

* Listed only as Colorado Threatened and Endangered Species
** Migrant occurrence.
***Doubtful existence on the Forest.

Forest Service botanists have diligently attempted to identify species and locations of plants which may have endangered, threatened, or sensitive status. In addition, these botanists have been involved with recommendations and information pertinent to the U.S. Fish and Wildlife Service (US F&WS) listings On December 15, 1980, the US F&WS published in the Federal Register a list of those plant species native to the United States that were being reviewed as endangered or threatened under the Endangered Species act of 1973, as amended Forest personnel have inventoried 1 plant species listed in this publication as Category 1. Five plant species in Category 2 possibly occur although not all have been located on the ground. Plants thus inventoried will be managed to permit the US F&WS to make accurate evaluations as to their status.

The sensitive species, Uncompahgre Fritillary Butterfly (*Boleria acronema*) is under consideration for Federal designation and exists on the Forest Its habitat is being studied by the Colorado Natural Areas Program. The species *Braya humilus* spp. *Ventosa* (no common name) is in need of special management according to Regional Direction.

During informal consultation, the U.S. Fish and Wildlife Service indicated the Forest Plan analysis should consider three additional threatened and endangered fish species. These species are: Colorado Squawfish, *Ptychochellus lucius*; Humpback Chub, *Gila cypha*; and Razorback Sucker, *Xyrauchen texanus*. None of these fish have been found on the Forest and the identified occupied and historical ranges are far removed from the Forest. (Source: Essential Habitat for Threatened and Endangered; David Langlois, 1978.)

Management Indicator Species

Habitat requirements vary according to early and late forest succession stages. Early forest succession refers to plant communities that develop after harvest or removal of vegetation, for example, grass, forbs, or tree seedlings. Late forest succession refers to a stage in which trees are mature or overmature.

Certain wildlife species found in specific vegetation types have been selected to represent the habitat needs of a larger group of species requiring similar habitats. These are called management indicator species The species selected for late forest or vegetation succession represent a smaller number of wildlife species with highly specialized requirements Early succession species represent a large number of wildlife species which are more adaptable to early secondary vegetation. Table II-15 displays the indicator species and their habitat association.

TABLE II-15

ASSOCIATIONS OF MANAGEMENT INDICATOR SPECIES

VEGETATIVE TYPE	EARLY SUCCESSION	AB*	LATE SUCCESSION	AB*
Old Growth Spruce-fir	Elk	F	Pine Marten	U
Mature Spruce and Douglas-fir	Elk	F	Red Crossbill	A
Mature Lodgepole Pine	Elk	F	Hairy Woodpecker	F
Mature Aspen	Elk	C	Goshawk	F
Mature Ponderosa Pine	Mule Deer	C	Abert Squirrel	F
Mature Mountain Shrub	Elk	F	Lewis' Woodpecker	C
Later Succession Sagebrush	Mule Deer	A	Sage Grouse	F
Mature Pinyon-Juniper	Mule Deer	A	Pinyon Jay	C

* Abundance Code
A = Abundant· Observation of 25 per day usual in suitable habitat
C = Common Observation of 10 per day.
F = Fairly Common: One or more observed per day.
U = Undetermined· Not enough information to classify

The Forest planning process identified management indicator species They represent the effects and influences of land uses on wildlife and fish. Table II-16 displays the Forest's management indicator species. Criteria used to select these species were:

--There were issues or concerns about the wildlife/fisheries species and/or their habitat

--The species is endangered or threatened, either nationally or statewide.

--The species has special habitat needs that may be influenced significantly by management practices resulting from land use allocation.

--The species are economically important and are commonly hunted, fished, or trapped.

--The species represents the habitat requirements of other species or groups of species.

TABLE II-16

SPECIES AND THEIR SIGNIFICANCE TO MANAGEMENT AS INDICATORS

Species	Habitat Indicator Significance
Mule Deer	Economically Important
Elk	Economically Important
Bighorn Sheep	Economically Important
Rainbow Trout	Economically Important
Brown Trout	Represents Requirements for Other Species
Black Bear	Economically Important
Abert Squirrel	Special Habitat Needs
Pine Marten	Special Habitat Needs
Hairy Woodpecker	Represents Requirements for Other Species
Red Crossbill	Represents Requirements for Other Species
Goshawk	Represents Requirements for Other Species
Lewis' Woodpecker	Represents Requirements for Other Species
Sage Grouse	Represents Requirements for Other Species
Pinyon-Jay	Represents Requirements for Other Species
Peregrine Falcon	Threatened and Endangered
Bald Eagle	Threatened and Endangered
Colorado River Cutthroat Trout	Threatened and Endangered

NEW TEXT

Range

Data which portrays allotment acreage, suitability, range condition, and carrying capacity for the grazing allotments on the three National Forests is 15-20 years old and considered useful but outdated Based upon such data it is estimated that the three combined National Forests contain approximately 1,200,000 acres of suitable and available rangeland. Of the total suitable acres, it is estimated that 115,000 occur within designated wilderness areas

Range condition is currently measured as "ecological range condition", or "seral stage". This is the measure of comparing existing vegetative composition with the "potential natural community", or the vegetative composition that should exist on the site if the site had remained relatively undisturbed. Range condition objectives are identified in this plan, by seral stage. Based upon the 1989 Forest response to the General Accounting Office Report, it is estimated that less than 50 percent of the suitable acres are currently meeting "Ecological Range Condition" objectives.

There are 242 livestock grazing allotments on the Forest; 183 are cattle and horse allotments and 59 are sheep and goat allotments. Dual use by sheep and cattle is occurring on 8 allotments. Most allotments have outdated management plans which do not consider the integration of other uses and are generally not in compliance with the objectives of this plan

Emphasis in the next decade will be updating existing allotment management plans to achieve consistency and compliance with NEPA and the resource management objectives of this Plan. This will be especially critical in achieving prescribed riparian management objectives. Emphasis will also be placed on cooperating with the Colorado Division of Wildlife in achieving big game population levels which are compatible with existing uses and consistent with forage resource requirements. Where grazing of livestock or big game is inconsistent with the objectives of this plan and does not allow for the needs of the forage resource, adjustments will be necessary.

Approximately 64,000 cattle, 5,000 horses, and 53,000 sheep are annually permitted and dependent on summer forage produced on the three forests Big game populations of primarily elk and deer number in the thousands and are largely dependent on the public land range forage resource for summer and, to some extent, winter grazing

Opportunity exists to facilitate quality range forage improvement through structural and non-structural range improvements, as well as changes in class of livestock, age class of livestock and season of use Most improvements are joint cooperative ventures with livestock grazing permittees and the Colorado Division of Wildlife. It is anticipated that the greatest gains in vegetative composition and forage production will occur with intensified grazing permit administration and the development of grazing systems and big game herd unit plans which accommodate the basic requirements of the desired vegetation. Such gains will occur as a result of increased plant vigor and the eventual replacement of less than desirable plants by more desirable species.

Increased emphasis will be given to public involvement which will involve input and representation from the broad spectrum of user groups and individuals interested in National Forest grazing. Desired management direction will be tailored to specific on site resource uses and values and consistent with the objectives set forth in this Plan.

Dependency on National Forest range lands for domestic livestock grazing as well as big game forage and habitat is high. Demand would suggest that additional AUM's of livestock grazing as well as increased harvesting of big game could readily be sold. Demand for recreation related uses, wilderness, mining, oil and gas exploration and development, utility corridors, clean water, and other wildlife and fisheries habitats is increasing and must be considered in the future integration of uses on the Forest range lands.

Future rangeland resource allocations will challenge traditional range uses and may result in adjustments to achieve integrated resource management objectives The grazing of domestic livestock will be considered more as a management tool to achieve desired vegetative resource conditions. The short term effects of such action may create adverse economic impacts on those ranchers who graze livestock on allotments which are overstocked or are inconsistent in their management approach in meeting the vegetative resource management objectives of this Plan. The long term effects will result in improved rangeland condition, increased vegetative production and vigor, streams and associated riparian zones in balance with their ecological potential, increased water quality, improved wildlife habitat, decreased soil movement, and an aesthetically inviting and pleasing environment to the many different rangeland users.

Permitted livestock use level, as measured in AUM's, is expected to decrease from the current permitted of 340 0 M. As a note of reference, the total of the actual use in 1989 was 267.5 M AUM's.

Big game use projections are expected to follow a similar trend of decreasing and eventually leveling off.

The effect of timber harvesting at the proposed levels on available forage for grazing both livestock and big game is considered insignificant While such effects, especially in aspen, can be significant on a site specific basis, the effects usually deal more with short term transitional forage increases, disruptions in historical distribution patterns, temporary changes in animal preference patterns, temporary increases in human and mechanized equipment activity, and changes in livestock and big game management techniques

Timber

Timber management on the Forest will not be financially efficient given the current minimum stumpage rates. Some individual sales may be "above cost" if stumpage is bid up high enough to cover costs Based on current stumpage rates used in the planning process, spruce/fir sales are the only species which will probably be economically efficient

The Forest Service is not required to be financially efficient in any of it's programs, including commercial timber sales If that changes, either stumpage rates will have to increase, or volume will have to be decreased Forest costs to plan, prepare, administer and monitor timber sales have been reduced over the years to the point where little if any further reductions are possible while still providing quality resource management.

The Forest is offering a commercial timber sale program in order to provide some wood fiber utilization level; the level proposed may not meet the demand stated by the wood products industry. A sustainable commercial timber sale program, which is acceptable to public interest groups, will provide some economic stability to the local industry and to local communities.

In the Plan, for each dollar spent on the commercial timber sales program (including road constructions costs), it is estimated that the following economic activities occur:

- $0 11 is returned to the Treasury in cash stumpage
- $0 10 is paid to the counties out of the 25% fund which offsets the PILT payment out of the Treasury
- $0.23 in additional water is produced
- from $1.61 to $5.11 in employee income is generated in the local area (depending on whether the waferboard plant stays) ***END NEW TEXT***

A commercial timber sale program does have other benefits that may not be easily quantifiable but nevertheless exist. Some examples follow:

-- The skewed age class distribution towards an older, mature to over-mature forest makes some species on the forest highly susceptible to insect and disease infestations Direct epidemic control is an expensive, short-term solution. Silvicultural treatments through commercial timber sales offer an opportunity to provide long-term protection at a reduced cost and realize the additional benefits of the timber harvested ***NEW TEXT*** A current example of this includes the epidemic of mountain pine beetle infesting the ponderosa pine on the Uncompahgre Plateau. Similar insect and disease infestations can be anticipated in the lodgepole pine forests (similar to the infestations on the Targhee and Bridger-Teton National Forest) and the Englemann spruce stands (similar to the devestation on the White River National Forest in the 40's) on the Forest While it may take several decades for the infestations to occur, they most likely will as a result of natural processes of a dynamic forest.

-- An additional benefit of changing the Forest's age class distribution from its present mature condition is the increase of early successional structural stages, an important habitat needed for many wildlife species Since the advent of modern fire control, the most effective natural creator of early structural stages (wildfire) no longer provides an ideal structural balance. The balance of structural stages can be improved artificially by regenerating mature forests. Such changes in age classes are most efficiently accomplished with a commercial timber sale. ***END NEW TEXT***

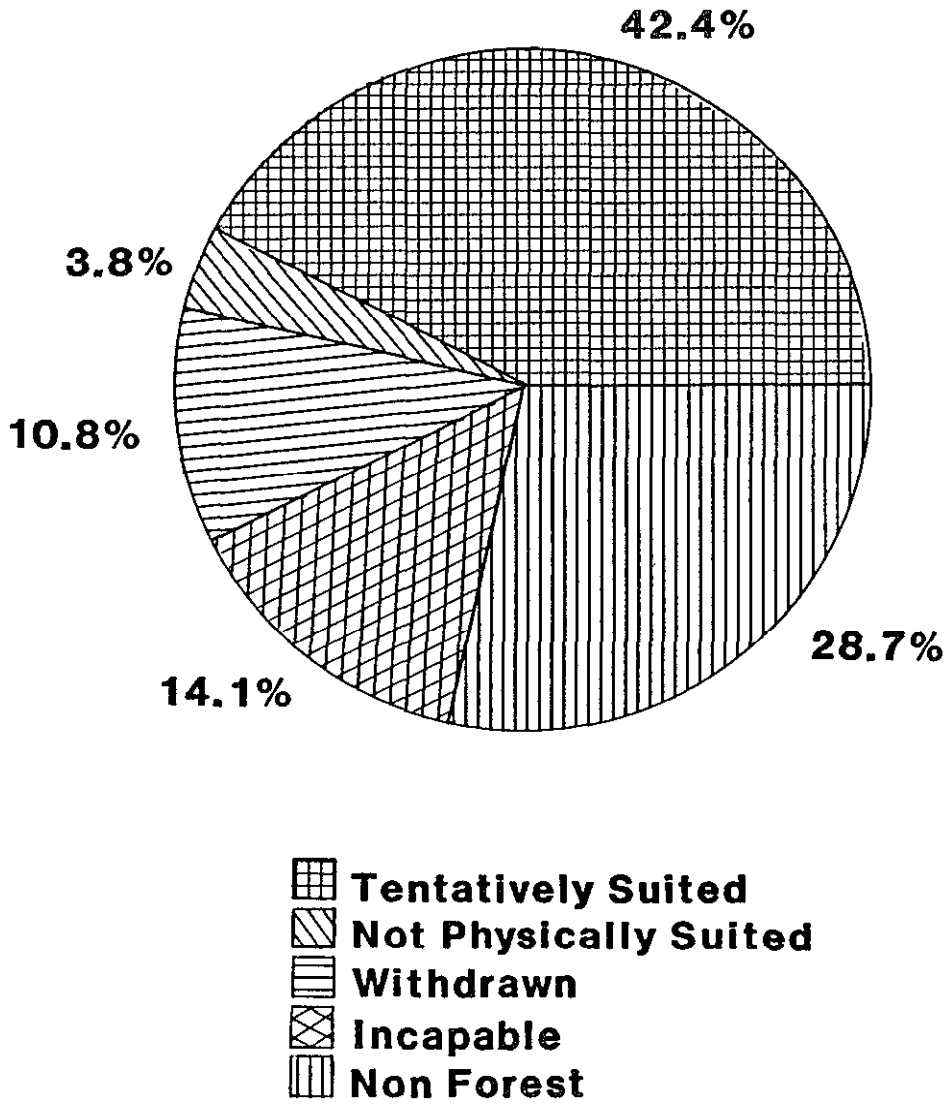
-- Dispersed motorized recreation is a very popular activity on many of the Forest's roads. As more people engage in this activity, the quality of the experience decreases. A coordinated timber management and travel management program offers the opportunity to enhance dispersed motorized recreation.

-- A related resource management need is improved access for public firewood gathering. Much of the firewood along existing roads has been removed through public firewood programs Improved Forest access as a result of resource management will increase the available public firewood supply.

NEW TEXT Approximately 42% of the Forest (1,253,541 acres) are classified as tentatively suited for timber production. Figure II-5 and Table II-17 display the lands capable, available and tentatively suited for timber production on the Forest

FIGURE II-5

DETERMINATION OF TENTATIVELY SUITED TIMBER LANDS



NEW TEXT **TABLE II-17 - LAND TENTATIVELY SUITED FOR TIMBER PRODUCTION**

CRITERION	Non Forest Water	Non Forest Land	Oakbrush	Pinyon Juniper	Aspen Cottonwood	Lodgepole Pine	Ponderosa Pine	Spruce Fir	Totals	Original
NON-FOREST LAND										
-Non-Forest		838,229							838,229	715,907
-Water	10,515								10,515	15,199
Subtotal									**848,744**	**731,106**
FOREST LAND WITH-DRAWN FROM TIMBER PRODUCTION										
-Wilderness					49,829	32,475	151	186,661	269,116	213,249
-Research Natural Areas										
(1) Gothic										
(2) Escalante					32		205		237	
-Wilderness Study Areas										
(1) Fossil Ridge					386	24,853		8,296	33,535	32,181
-Further Planning Area										
(1) Recommended portion of Cannibal Plateau					1,853	130		4,818	6,801	
-Minimum Biological Growth (less than 20 CF/AC/YR)										848,337
-Administrative Sites					1,0043	50	165	1,219	2,477	1,298
-Campgrounds					781	3,166		3,525	7,472	
-Cultural Areas								400	400	
Subtotal					**53,924**	**60,674**	**521**	**204,919**	**320,038**	**1,095,491**
FOREST LAND INCAPABLE OF PRODUCING INDUSTRI-AL WOOD			**167,606**	**112,097**	**58,226**	**4,384**	**10,256**	**65,044**	**417,613**	
NOT PHYSICALLY SUITED										
-Restocking within 5 years cannot be assured					328	108	355	8,126	8,917	
-Potential Resource Damage (plus 5A's)					71,485	2,077	1,309	27,712	102,582	37,381
-Inadequate Response Information					779		641	331	1,751	
Subtotal					**72,591**	**2,185**	**2,305**	**36,169**	**113,250**	**37,381**

CRITERION	Non Forest Water	Non Forest Land	Oakbrush	Pinyon Juniper	Aspen Cottonwood	Lodgepole Pine	Ponderosa Pine	Spruce Fir	Totals	Original
UNSUITED TOTAL	10,515	838,229	167,606	112,097	184,741	67,243	13,082	306,132	1,699,645	1,863,978
TOTAL NET FOREST ACRES	10,515	838,229	167,606	112,097	530,526	317,119	114,700	862,394	2,953,186	2,953,186
LANDS TENTATIVELY SUITED FOR TIMBER PRODUCTION	**0**	**0**	**0**	**0**	**345,785**	**249,876**	**101,618**	**556,262**	**1,253,541**	**1,089,208**

NEW TEXT

Lands Identified as Not Appropriate for Timber Production

As stated in 36 CFR 219.14(c), lands identified as "tentatively suited" for timber production must be further evaluated to determine which lands are "not appropriate" for timber production to meet the objectives of each alternative analyzed in detail Tentatively suited lands which pass through this screen are considered "suited" for timber production

Between the draft and final SEIS, the Forest evaluated all tentatively suited lands on a site-specific basis using 1.24,000 scale topographic maps together with field verification and on-the-ground knowledge of Ranger District personnel. The criteria used to conduct the evaluation were based on 36 CFR 219 14(c) The criteria were applied as follows:

1. 36 CFR 219 14(c)(1) - "Based upon a consideration of multiple-use objectives for the alternative, the land is proposed for resource uses that preclude timber production, such as wilderness;" (FSH 2409 13, Chapter 32 2 further defines this category by saying ".. Examples might be managing a trail corridor for preservation of existing scenic qualities ") The lands identified in this category were made up primarily of ski areas and visually sensitive areas as identified by the public during the draft comment period They are identified as the "5B" lands (not to be confused with management area 5B) on the topographic maps

2 36 CFR 219 14(c)(2) - "Other management objectives for the alternative limit timber production activities to the point where management requirements set forth in § 219 27 cannot be met," The lands identified in this category were those with unstable and slumpy soils where a high risk of irreversible damage could occur. They were lands that should not have passed the "tentatively suited" screen defined in FSH 2409 13, Chapter 21 41 They are identified as the "5A" lands on the topographic maps

3 36 CFR 219 14(c)(3) - "The lands are not cost efficient, over the planning horizon, in meeting forest objectives, which include timber production " While none of the tentatively suited lands were cost efficient (considering current costs and timber stumpage values), the least efficent tentatively suited lands were identified in this step The Forest identified five categories of lands where the timber harvesting costs were greater than those considered "suited". They were 1) lands where excessive surface rock existed (labeled "1" on the maps), 2) stands of timber physically isolated and removed from other timbered areas (labeled "2" on the maps); 3) stands of timber where productivity was far below average for the Forest (also labeled "2" on the maps), 4) lands over 40% slope (labeled "3" on the maps), and lands with excessive road access costs due to either distance or sideslope where the roads would have to be built (also labeled "3" on the maps)

The analysis areas associated with each of these areas were identified and unique costs were developed for each of the five categories The FORPLAN model was then modified to reflect this more accurate information reflecting actual on-the-ground conditions The process is described in greater detail in Appendix B of the final SEIS beginning on page B-15

Suited Lands

The lands considered suited for timber production are the "appropriate lands" identified by each District on the topographic maps. The results by Ranger District are displayed in Table II-19.

TABLE II-18

MAPPING ACRES

CRITERIA	ASPEN	CONIFER	TOTALS
GROSS ACRES	530,526	1,294,213	1,824,739
TENTATIVELY SUITED	345,785	907,756	1,253,541
NOT APPROPRIATE			
1-Rock	4,261	23,983	28,244
2-Low Productivity	14,182	30,783	44,965
2-Isolated Patches	33,760	79,995	113,755
3-High Road Cost/Access	110,897	371,126	445,737
5B-Other Values	13,367	21,056	70,709
SUBTOTAL NOT APPROP	176,467	526,943	703,410
APPROPRIATE (Suited)	163,918	380,813	544,731
High Road Cost (Suited)	5,400	0	5,400
SUBTOTAL SUITED	169,318	380,813	550,131

TABLE II-19

SUITED ACRES BY RANGER DISTRICT

District	Conifer Acres	Aspen Acres	Total Acres
Cebolla	97,616	10,736	108,352
Collbran	24,785	18,473	43,258
Grand Junction	13,640	17,991	31,631
Norwood	76,520	27,913	104,433
Ouray	62,011	36,081	98,092
Paonia	27,442	39,006	66,448
Taylor River	78,798	13,717	92,515
Forest Wide	380,812	163,917	544,729

Aspen

Aspen management was a key issue in the Amendment analysis. During original Plan development, 489,593 acres were identified as "commercial aspen lands" which is similar to being tentatively suited for timber production (Table F-3, page F-7 of the Plan). Of this acreage, 462,183 acres were considered not available for timber harvests due to a lack of a commercial market (Table IV-23, page IV-55 of the EIS) for the selected alternative This resulted in only 27,410 acres being considered suited in the 1983 Plan

In response to the increased commercial demand and interest in aspen management, the new suitability analysis identified 345,785 acres of tentatively suited aspen of which 163,918 acres are considered suited for timber production in the proposed Plan.

Financial Efficiency

There are no financially efficient timber stands using current average timber prices (sawtimber - $20.57/MBF, conifer POL - $10 67/MBF; aspen POL - $11.06/MBF). Breakeven prices for each of these product categories are (sawtimber - $48 94/MBF; conifer POL - $45.47/MBF; aspen POL - $37.12/MBF The necessary breakeven stumpage prices for all tentatively suited lands is displayed in Table II-20.

TABLE II-20

BREAKEVEN PRICES

Land Category	Breakeven Prices ($/MBF)
Suited Lands	41.31
Not Appropriate Lands	
Rock	57.63
Isolated Patches	56.52
Low Productivity	68 05
Steep/Long Access	57 13
Multiple Uses	44.72

Timber Demand

There are 27 mills which purchase timber from the Forest. They range in size from a 32 million board foot (MMBF) waferwood plant to a 55 thousand board foot (MBF) mill which makes house logs. The two largest mills, (Louisiana Pacific and Blue Mesa Forest Products) account for 46% of the current local demand In addition, Stone Forest Industries located in South Fork, Colorado near the Rio Grande National Forest accounts for a portion of the future demand, especially on the southeast part of the Forest.

Table II-5 displays the estimated timber demand by the three non-interchangeable components which exist on the Forest; it does not include the demand for wood fiber products that may exist on lands such as private, state or BLM. It displays the past five years average annual harvests, the estimated current demand, and an estimated demand for the next 10 years based on industry growth predictions discussed in the Keystone process (See FSEIS Appendix A, Exhibit 5).

It is important to note that the aspen demand figures were based on the Colorado State Forest Service demand study which in large part relied on industries "stated" demand. Since a history does not exist for the waferwood industry in the GMUG area, the demand figures displayed below are the Forest Service's best estimates based on verbal input from the industry.

TABLE II-21

ESTIMATED TIMBER DEMAND (MBF)

	* Past 5 Years Harvest	Estimated Current Demand	Expected Future Demand
Sawtimber	21,000	21,000	29,600
Aspen POL **	11,600	28,800	31,000
Conifer POL ***	1,300	1,300	4,400
TOTALS	33,900	51,100	65,000

* The aspen POL historic harvest level does not reflect industries demand because of appeals and settlement agreements which held offerings at a lower level.
** 90% aspen, 10% lodgepole pine
*** includes 1,000 MBF post and poles and 300 MBF aspen products

A detailed description of how timber demand was determined is in Appendix B of the FSEIS.

Personal-use firewood cutting has been used to eliminate dead and down material left from past timber sales. Demand for personal-use firewood is estimated at 7 MMBF per year. Firewood is also available from green tree thinning, oak-brush management, and aspen stand treatment for wildlife habitat improvement.

In 1980, timber from State and private land supplied an estimated 2.5 MMBF to the local area. On State and private land there are about 93,261 acres of commercial sawtimber with a volume of over 750 MMBF. The potential yield is estimated at 3 MMBF annually.

Public land administered by the BLM comprises about 42,500 acres of commercial forest land with an estimated volume of 424 MMBF. The potential yield is estimated at 3 1 MMBF annually

Efforts have been undertaken to coordinate timber resource activities with State and other Federal agencies to better meet public demand for fuelwood supplies, both for individual and commercial uses. Areas designated for free-use firewood gathering are being coordinated with the BLM and a joint news release issued to the public This same action is being taken for Christmas tree sales to individuals

The small sales program emphasizes wood product availability to local farms and ranches. This program is also beneficial by giving opportunity to the small family-owned wood producing business to enter and expand operations on Federal, State, and private commercial forest land.

Tree Improvement

The timber resource is comprised of five predominant forest types They are· Engelmann spruce-subalpine fir, ponderosa pine, lodgepole pine, Douglas-fir, and aspen, Blue spruce, bristlecone pine, and limber pine occur either as mixtures with or on the fringes of the predominant types in certain situations.

Genetic principles are incorporated into all silvicultural prescriptions to insure naturally regenerated trees are of the best possible quality A limited tree improvement program has also been initiated on the Forest This is expected to be an ongoing program to produce superior quality trees at relatively low cost

Any vegetation treatment that improves the composition, condition, or growth increment of a forest stand may be considered timber stand improvement In the context used here, timber stand improvement refers to treatments made on a non-commercial basis to improve present and future resource values. Resources that benefit from the Forest's timber stand improvement program include wildlife, visual management, insects and disease prevention, and timber management Timber stand improvement is directed at precommercial thinning in regenerated stands, release and weeding in residual stands following over-wood removal, and precommercial thinning of overstocked natural stands Dwarf mistletoe control is another timber stand improvement that has been receiving more attention in recent years. Stagnated lodgepole pine stands which are less than merchantable size could provide firewood opportunities for the Forest These stands are typically rather old with very poor crown development and poor vigor. The ability of these stands to respond to thinning is very low ***END NEW TEXT***

Water

The water yield from the Forest comprises an estimated 40% of the Colorado River flow at the Colorado and Utah border. Total mean annual water production is approximately 2 87 million acre feet. This is an estimated increase of 18,600 acre-feet per year (.65%) above the level expected if all watersheds were in their natural pristine condition. Past vegetation treatment through timber harvest, wildfire, prescribed burning, wildlife habitat improvement, and road construction has contributed to the increased water production.

The majority of runoff from the Forest results from snowmelt during April through July. It is estimated that over 75 percent of total annual runoff occurs during this period The timing of peak flows varies considerably by elevation. At high elevations, where most Forest watersheds occur, stream flows are generally greatest from June through early July At lower elevations, peak flows can occur as early as mid-April

Water from the Forest is important for a variety of on-site and downstream uses. These include municipal, industrial, agriculture; instream flows for fisheries, recreation, wildlife, and for meeting delivery obligations to Mexico set by the United States - Mexico Water Treaty of 1944.

The maximum water yield increase potential by the year 2030 is estimated at 125,000 acre feet per year over current levels Most of this potential is a result of vegetation treatment and snowpack management Snowpack management in

non-forested areas, such as snowfencing on alpine ridges, provides potential for increasing water yields. The estimate of potential increases was based on the following assumptions:

- All tentatively suitable forest land with slopes less than 40% is assumed capable of vegetation treatment for water yield increases.
- Approximately one-third of the tentatively suitable forest land with slopes greater than 40% is assumed capable of vegetation treatment for water yield increases.
- Approximately one-third of non-forest land with slopes less than 40% is assumed capable of snowpack management for water yield increases
- Wilderness acreage is excluded.

NEW TEXT The water yield increase potential for the Forest through timber harvest is estimated at 67,000 acre-feet per year over current levels ****END NEW TEXT**** This estimate is based upon the following assumptions:

- Potential for increasing water yield is limited to forest land with stocking levels sufficient to be capable of commercial timber production in 50 years. Non-forest land is eliminated from this calculation.
- Potential for increasing water yield is limited to aspen, spruce-fir and lodgepole pine. Ponderosa pine was excluded due to dry sites. The extent of water yield increases from other Forest timber types is negligible.
- Potential for increasing water yield through timber harvest is limited to slopes less than 40% by economic and environmental considerations.
- Wilderness acreage is excluded.

An estimated 95% of the water flowing through the Forest meets quality standards Water not meeting standards is affected by toxic metallic pollutants from past mining activity, sediment from road construction, grazing in riparian areas, and timber harvest.

Water quality goals can be met by:

- Treating the watershed restoration needs as funds become available and treating new potential sediment sources immediately when they are discovered during project implementation.
- Increasing attention to riparian areas in range management plans.
- Coordination with state and local agencies.
- Planning silvicultural activities, grazing, road construction, and other management activity on a watershed basis to prevent excessive sediment production

Water quality sampling continues to monitor the success of the measures described above Sampling is also conducted to define the nature and extent of other potential problems that may occur with increasing development, such as those associated with acid rain precipitation.

Numerous water collection, storage, and distribution systems exist within the Forest boundary. Requests for further water development will continue to be processed according to State water law and Forest's permitting process

The importance of the water resource will increase greatly in future years. Runoff from this area is critical to the water supply of the southwest United States where much of the water generated on the Forest is used. There is an increasing demand for water on the western slope New industries also require additional water.

The question of how much additional water could be produced on the Forest depends on the demand for, value of, and the cost of providing the additional water. Other resource values and public desires must be considered Though agriculture (with a low marginal value for water) currently uses the majority of water, shifting economic structures may change the demand for and value of additional water. Economic principles do not operate freely to determine the price of water, especially "new" water. This is due to the complicated nature of the laws and customs governing water use and distribution in the Colorado River Basin The revenue generated for increased water is not an accurate gage of its value to society. No determination can be made with available information as to a desirable level of water augmentation on the Forest However, by modifying existing vegetation treatment practices at very low cost, the opportunity exists to more than double the rate of water yield increases This can be achieved while maintaining the minimum standards and guidelines for protecting and managing all other resources.

Minerals and Geology

Satisfying demand for locatable minerals is the responsibility of the mining industry. Public domain land is available for mineral exploration and development under all applicable laws and regulations. For leasable minerals the Department of Interior (subject to Forest Service consent on National Forest System Lands) leases tracts for development by the mining industry. Saleable minerals are the only type of mineral commodity for which the Forest can directly affect the supply by selling materials to individuals and private industry.

Limits on the time available for staking and validating claims and obtaining leases in designated wilderness are established in the 1964 Wilderness Act. The Act provides that the United States mining and mineral leasing laws apply within wilderness areas until midnight December 31, 1983. Effective January 1, 1984, wilderness areas are withdrawn from mineral entry This withdrawal is subject to valid claims and existing leases. Valid claims and existing leases on the withdrawal date are still available for further exploration and development. Claims that lack discovery by the above date will be void

After midnight December 31, 1983, new leases were not available in wilderness areas. Leases obtained within wilderness or wilderness study areas prior to the above date are subject to lease stipulation designed to protect the Wilderness environment These are included in the appendices accompanying the Plan In the case of coal leasing, wilderness designation of the study area will preclude coal leasing. This is subject to existing rights Under non-wilderness designation, the question of suitability for coal leasing will be determined by applying BLM's unsuitability criteria.

Oil and gas deposits within no surface occupancy areas could be recovered through directional drilling or other techniques which will not disturb surface resource values. Where timber management direction is applied on no lease areas, lease will be recommended under the limited surface use stipulation.

USDI, Bureau of Land Management, is the responsible agency for the Environmental Analysis of proposed operations on mineral leases Cooperation with the BLM insures that data developed in the Forest planning process is available for their analysis.

Forest Service policy toward mineral activities on National Forest System lands is guided by statues and expressed in regulation; in statements of the President, the Secretary of Agriculture and the Chief of the Forest Service; and in the Forest Service Manual

Minerals are fundamental to the Nation's well-being The National Forest System, by coincidence of geology and geography, is a principal storehouse of mineral and energy resources The search for and production of minerals and energy resources are statutorily authorized uses of the National Forest System, except for those lands formally withdrawn from mineral activities by Act of Congress or by Executive authority. Mineral activities on National Forest System lands are encouraged in accordance with the National Mining and Minerals Policy Act, the Acts governing mineral disposals from National Forest Mineral Policy Act, the Acts governing protection of the environment, including air and water quality

The Forest Service objective is to manage minerals related activities in a timely manner, consistent with multiple-use management principles, and to integrate the exploration, development, and production of mineral and energy resources with the use, conservation, and protection of other resources

Statutory and regulatory direction separate mineral resources in lands owned by the United States into three categories locatable, leasable, and salable.

Locatable minerals are those valuable deposits subject to exploration and development under the U.S General Mining Law of 1872 and its amendments Commonly, locatables are referred to as "hardrock" minerals Examples include, but are not limited to, deposits of iron, gold, silver, lead, zinc, copper, and molybdenum Citizens, and those who have declared their intent to become citizens have the statutory right to explore for, claim, and mine mineral deposits in Federally-owned lands subject to the U.S. Mining Laws, including those of the National Forest System. Through a memorandum of understanding with the Bureau of Land Management (BLM), U.S Department of Interior, the Forest Service administers most aspects of operation of U S. Mining Laws on National Forest System lands In addition, under the regulations in 36 CFR 228, the Forest Service approves exploration and mining operating plans and administers those operations to ensure protection and reclamation of affected resources

Federally-owned leasable minerals include fossil fuels (coal, oil, gas, oil shale, etc.), geothermal resources, potassium, sodium, carbon dioxide, phosphates, and sulphur in New Mexico and Louisiana These minerals are subject to exploration and development under leases, permits or licenses granted by the Secretary of the Interior. The controlling statutes currently are the Mineral Lands Leasing Act of 1920 and amendments, the Mineral Leasing Act for Acquired Lands of 1947, the Geothermal Steam Act of 1970, and the Oil & Gas Leasing Reform Act of 1987, whichever applies to the particular resource. The Secretary of the Interior's authority is administered by the Bureau of Land Management When National Forest System lands are involved, the BLM requests the Forest Service's recommendation for minerals, other than coal, subject to the 1920 Act, or the Forest Service's consent decisions for minerals subject to the 1947 and 1970 Acts and for all coal deposits. Forest Service recommendations for and consent to the BLM for leasing, permitting or licensing except for coal include appropriate stipulations to be included in the issued license, permit or lease for the management of surface resources. The Secretary of the Interior, through the Office of Surface Mining (OSM) for coal and through the Bureau of Land Management for other minerals has the authority to administer operations on National Forest System lands leased, licensed or permitted under his authority.

Prior to approval of operating plans, the Forest Service participates with BLM or OSM in the formulation of the site-specific terms and conditions of operating plans so the plans provide appropriate mitigation measures to insure that adverse impacts on surface resources will not exceed applicable environmental protection standards Plans must be designed to minimize the impacts of operations on other uses and surface resources, and to provide for prompt reclamation or restoration of affected lands upon completion of operations.

Section 308 of the 1983 Appropriations Act prohibits the expenditure of funds for processing or issuing lease applications in wilderness, RARE II proposed wilderness, further planning areas, and congressionally designated study areas, with certain exceptions. One notable exception pertains to the border leases for the subsurface of such areas if they are immediately adjacent to producing oil and gas fields or areas that are prospectively valuable Such leases shall allow no surface occupancy.

Salable mineral materials, or common varieties, are generally low value deposits of sand, clay, and stone that are used for building materials and road surfacing. Disposal of these materials from the National Forest System is totally at the discretion of and by the Forest Service. Requirements controlling salable mineral material operations are similar to those for leasable minerals.

Mining has played an important role in the planning area. The Colorado Mineral Belt crosses the Forest. It has produced zinc, lead, gold, silver, copper, and cadmium. Uranium and vanadium are produced from the Uravan Mineral Belt that lies immediately south of the Uncompahgre Plateau. Large deposits of molybdenum have been discovered (Mt Emmons Mining Project Final EIS, October, 1982) Much of the Forest has been rated by the U S Geological Survey having moderate to high potential for oil and natural gas. Bituminous coal exists adjacent to and in the Forest in the Grand Mesa Coal Field, Delta, and Mesa Counties; and in the Cimarron Ridge area, Montrose, Ouray, and Gunnison Counties. Low grade oil shale deposits occur within the Forest boundary.

The Forest encourages environmentally sound energy and minerals development. It emphasizes oil, gas, and mineral exploration and development outside wilderness areas. Emphasis is placed on timely processing of mineral proposals. Equal emphasis is placed on refinement and improvement of procedures to protect surface resources, while permitting the exploration for the extraction of mineral resources.

Most past and present metal production has been from mining districts in Gunnison, Ouray, San Juan, and eastern San Miguel Counties. Current production is mainly zinc, lead, gold, silver, copper, and cadmium from deposits in the Ouray - Telluride - Silverton triangle. Smaller quantities have been produced from the adjacent Ophir and Mount Wilson mining districts in San Miguel county. Gunnison county has several mining districts, including Elk, Gold Creek, Gothic, Pitkin, Ruby, and Tincup. These areas have produce gold, silver, copper, lead, and zinc. No current metal production is recorded from Gunnison County but exploration is being conducted north and west of Crested Butte. Interest in molybdenum has been generated by the Mount Emmons discovery near Crested Butte in 1977. Favorable geology and demand for metals indicate that the planning area will be intensively prospected in the future.

Production in recent years has occurred at the Blue Ribbon Coal Mine, Coal Basin Coal Mine, Homestake Pitch Project, Mount Gunnison Coal Mine, and the Somerset Coal Mine.

Approximately 40% of the Uncompahgre Plateau is currently leased for oil and gas Over 90% of the Grand Mesa National Forest and the Paonia Ranger District north of the West Elk Wilderness on the Gunnison National Forest have been leased for oil and gas. Minor portions east of the West Elk Wilderness existing commitments and rights granted for mineral development Some exploration drilling has occurred.

Five geothermal leases have been issued: four on the Gunnison National Forest, and one on the Uncompahgre National Forest. These leases cover 9,267 acres. No drilling has been done to date.

The Forest identified 755,862 acres having "high" to "moderate" suitability for coal leasing, and 224,491 acres being unsuitable for coal leasing Appendix F details the unsuitability assessment for coal mining using the BLM's unsuitability criteria.

The planning area produced $101,243,955 worth of minerals in 1978 Coal was the most valuable output, followed closely by uranium and vanadium Table II-22 displays the production breakdown by type of mineral

TABLE II-22

MINERAL PRODUCTION SUMMARY

Mineral	Production Dollars
Coal	40,336,832
Oil and Gas	6,722,866
Base and Precious Metals	18,709,594
Uranium/Vanadium	30,561,837
Sand and Gravel	4,912,826
TOTAL	101,243,955

The demand for mineral commodities fluctuates with economic and technological conditions. The Forest does not directly satisfy minerals demand, but the planning process must consider demand factors. Areas where there is high potential for a mineral resource with a favorable demand outlook should expect an increase in mineral exploration activity. This activity increases the chance of major mineral development.

Increasing demand for mineral resources will accelerate population growth. This growth must be monitored and considered in terms of its impacts on Forest uses and renewable resources.

Human and Community Development

The Forest is currently operating five major manpower programs which provide employment, skill training, experience, and education for a wide range of age groups interested in natural resource management. Manpower programs provide a valuable service to the Forest and at the same time fulfill a U S Department of Agriculture commitment to serve the unemployed, under-employed, minorities, and economically disadvantaged youth and elderly through related forestry activities. The following programs exist on the Forest.

-- Youth Conservation Corp (YCC). Although YCC is not currently functioning as a Human Resource Program due to limited funding, it has played an active and important role in past years.

-- Senior Community Service Employment Program (Older American). The Older American Program, being quite active on the Forest, employs 15 part-time elderly persons whose incomes are within poverty level standards

-- Volunteers Because individuals participate in this program without compensation numbers of volunteers actively participation at any one time varies substantially. Campground hosts and trail maintenance duties are popular volunteer projects on the Forest

-- Comprehensive Employment and Training Act (CETA). This program has been reduced. It is doubtful the Forest will be able to host the enrollees of the various titles of the Act.

-- College Work Study. This cooperative program is one which the Forest has supported within the limits of its funding capacity.

All participants benefit from the manpower programs. The enrollee receives income and training or employment opportunities that are not otherwise available. A program review for 1979 and 1980 indicates a substantial involvement and commitment on the Forest's part.

The outlook for manpower and youth training programs on the Forest is not encouraging. Many of the programs are Federally funded, with monies coming from other Federal agencies. The Forest's participation is determined primarily by National economic conditions and the political climate.

SUPPORT ELEMENTS

Protection

The protection support elements include fire, forest pest management, animal damage control, law enforcement, and air quality monitoring.

Fire

The current fire management program is based on resource protection from fire *through fire prevention, presuppression, and fuel treatment. The overall fire* management objective is to provide a cost-effective program which responds to land and resource management goals and objectives. The wildfire suppression objective is to take appropriate suppression action on each wildfire so that management objectives may be met at reasonable costs. The management program is a coordinated interagency effort involving Federal, State, and local governments Wildfires have periodically burned large areas of the Forest These fires have had an important effect on the type, composition, age, quality, and growth rate of the various vegetation types. Analysis indicates that, on an average, 51 fires burn a total of 291 acres annually on the Forest. Approximately 43% of the fires are human caused Recent trends indicate an increase in man-cause fires and acres burned. Table II-18 summarizes the fire statistics for a "Level 1" fire management analysis for the Forest through the 1971-1980 period

In 1979, a study was made of four other National Forests in the Rocky Mountain Region to determine their most cost-efficient level of fire protection The intent of the study was to find the level of budgeted fire protection funding which would result in the lowest total cost of protection, suppression, and resource damages. A comparison of vegetation types was then made to extrapolate the results of this study for application to other National Forests in the Region. This comparison indicated that annual expenditures of $210,000 (1979 dollars) for fire prevention, detection, manning, equipment, and fuels treatment should result in the least total cost for fire protection on the Forest. In recent years, the Forest's protection program has not been fully funded to the level indicated above This may account in part for some of the increase in the number of man-caused fires and acres burned as noted in Table II-23.

Fuel treatment to reduce fire hazard has been largely accomplished in connection with vegetation treatment (silvicultural) activities. This includes removing excess trees, salvaging dead and down material, and prescribed burning. Vegetation treatment through prescribed burning is also being used extensively for range and wildlife habitat improvement programs

TABLE II-23

FIRE STATISTICS (1971-1980)

Year	Total FFP* Budget	Suppression Costs	Total Fire Program	Acres Burned	Total Number
1971	36,000	8,000	44,000	37	41
1972	73,000	72,000	145,000	53	45
1973	80,000	60,000	140,000	107	24
1974	75,000	112,000	187,000	472	77
1975	72,000	162,000	234,000	55	35
1976	52,000	40,000	92,000	313	50
1977	157,000	120,000	277,000	206	54
1978	137,000	88,000	225,000	488	78
1979	119,000	148,000	267,000	112	50
1980	217,000	349,000	611,000	1,062	53
Average 1971-1980	101,400	120,400	222,000	290	51

*FFP=Forest Fire Protection

The use of prescribed fire to achieve Forest resource management objective will continue to increase as more information is gained through research, monitoring and analysis of the physical, biological and economic effects of fire Fire risk and some increase in the number of man-caused fires can be expected as development and visitor use increases The fire prevention program including closures, regulated use and public education will require more emphasis with expected population growth

Forest Pest Management

The most prevalent insect pests on the Forest are the Engelmann spruce bark beetle, mountain pine beetle, Western Pine Beetle, Round-headed beetle, and the Western spruce budworm. there have been serious outbreaks in the past Currently, the mountain pine beetle, Western Pine Beetle and the Round-headed beetle are causing resource loss on the Uncompahgre Plateau. This epidemic is being treated by stand improvement projects, ***NEW TEXT*** removal of infested trees and timber sales. ***END NEW TEXT***

Current state of the art provides techniques for risk rating stands to establish priority for treatments. These methods will be incorporated in future inventory programs.

Dwarf mistletoe continues to be a problem predominately in the lodgepole pine and to a lesser degree in ponderosa pine. Dwarf mistletoe in lodgepole pine is being reduced by removal of the infested trees using vegetation treatment activities such as timber stand improvement, sales, and destruction of unmerchantable infected stands. Where necessary stands are regenerated using natural or artificial reforestation methods. These practices will continue throughout the planning period.

Controlling mountain pine beetle may require one or a combination of direct chemical treatment, timber harvest, and timber stand improvement While the short-term objective is to reduce beetle populations and subsequent tree mortality, the ultimate goal is to create a mosaic of tree age and size classes and to increase species diversity.

The Forest's timber management program in past years has not been at a sufficient level to apply the stocking control and harvesting of mature timber necessary to maintain healthy, vigorous stands. As a result of this lack of silvicultural treatment, many areas on the Forest are susceptible to epidemic insect populations. A large portion of the forested vegetation is overmature and considered highly susceptible to insects and disease. At the present time, the lodgepole pine stands which became established near the beginning of the twentieth century are the most susceptible.

The predominance of mature timber stands on the Forest provides conditions suitable for a number of other diseases such as broom rusts, decaying agents, and cankers. While none of these cause unacceptable losses Forest-wide, they have a significant impact in sensitive areas such as ski areas and campgrounds

Animal Damage Control

Animal damage control is conducted primarily on sheep allotments to reduce coyote predation. The United States Department of Interior, Fish and Wildlife Service is the agency authorized to conduct animal damage programs on Federal land as approved by the Forest Service.

Requests for predator control are made to the District Ranger by grazing permittees. An evaluation of the losses is made to determine whether control is justified If action is warranted the type of control, location, and duration of control measures is agreed upon by the Forest Service, Fish and Wildlife Service, and the DOW. These agreements are made on an annual basis.

Emergency control measures, not covered by an agreement, are handled on a case by case basis The agency responsible for control assumes the responsibility for actions giving early notification to the other agencies.

Law Enforcement

The responsibility for law enforcement rests primarily with the individual county sheriffs. Additional support comes from the Colorado State Patrol and DOW.

Generally, law enforcement problems on the Forest have been minor. Violations are associated with timber trespass, off-road vehicle use, and fire laws The number of violation notices issued has remained static the last few years

The Forest has entered into, or participates with adjoining Forests, cooperative law enforcement agreements with all of the counties containing Forest land. The counties involved include Delta, Garfield, Gunnison, Hinsdale, Mesa, Montrose, Ouray, Saguache, San Juan, and San Miguel.

Air Quality

Air quality over most of the Forest is good The main source of pollutants from Forest activities are, and will continue to be, suspended particulates from wildfire and prescribed burning. Present and imminent external sources of air pollution are associated with dust from roads and exhaust emissions from internal combustion engines.

Through the "Prevention of Significant Deterioration" provisions of the Clean Air Act (42 USC 1857, et seq.), Congress has established a land classification scheme for areas of the country with air quality standards. Class I allows very little additional deterioration of air quality; Class II allows more deterioration; and Class III allows still more. All areas of the Forest are currently classified Class II, except portions of the West Elk Wilderness and the La Garita Wilderness, which are Class I areas

Pest control in forest stands is managed to meet long-range objectives through silvicultural practices; particularly harvesting, planting, and utilization practices Biological, chemical, mechanical, and prescribed burning are considered for epidemic conditions.

Future energy related developments and associated populations growth are expected to have a detrimental effect on air quality.

Lands

Forest land use and occupancy is authorized by special use permits, easements, memorandums of understanding, leases, and other agreements. Over 850 special use permits authorize uses such as pasture permits, utilities, ditches, reservoirs, and roads. There are 88 existing utility permits with 565 miles of corridor on the Forest. There are four existing electronic sites for commercial and individual uses Greyhead and Mesa Point are proposed electronic sites for four commercial companies. The Forest has 10 electronic sites for its communication needs. The Forest Service is responsible for managing the surface resources The Department of Interior is responsible for managing the mineral estate.

Applications for special uses are processed in the order received. In the past five years, special uses which solely benefit private parties have been given low priority for action. Recreation residence permits, although no longer granted, exist on the Forest The Forest planning process identified no higher resource use for summer home areas for the next 10 years.

Land owned by others within and adjacent to National Forest System boundaries may affect management of and control access to National Forest System land. Location and delineation of the property boundary is necessary for effective use. To date, 2,130 corners and 81 5 miles of boundary have been posted and marked.

Landownership Adjustment

There are 210,217 acres within the Forest boundary in other ownership with about 150,000 acres of mineral patents. The landownership pattern and use is complicated and management of small National Forest System parcels is ineffective and inefficient. Ownership changes occur through land exchange, fee purchase, and acquisition of specific rights through easements Currently, the Forest may only dispose of property through exchange and the townsite authority. Regulations have been written to implement disposal through the Small Tracts Act.

The Forest has purchased 735 acres through the Land and Water Conservation Fund Act (L & WCF). There are about seventeen hundred acres of private and/or State-owned land in the existing wilderness areas Land exchanges will be used to adjust ownership instead of using the L&WCF programs.

Forest landownership adjustments are coordinated with the plans and programs of other Federal agencies and State and local governments. Both private and government interest in landownership adjustment is expected to increase from the present level.

Land ownership adjustment proposals from private and government agencies are expected to increase in the immediate future.

Withdrawals and Revocations

A withdrawal is an action restricting land use and segregating the land from availability for mineral uses A review and assessment of existing withdrawals is required by the Federal Land Policy Management Act 1976 The procedure requires coordination with the BLM and the U.S. Geological Survey.

The Forest does not anticipate new withdrawals for specific administrative sites or other investments (such as new recreation sites). Existing surface management regulations adequately protect other resources, in most cases eliminating the need for other formal withdrawals.

Rights-of-Way Acquisition

Non-federal land within and adjacent to the Forest has resulted in management problems that are becoming more critical as demand on public land increases. Areas of the Forest are isolated. Access to and within the Forest for general public use is a public issue The top priority cases are rights-of-way for timber sales. Condemnation has been used sparingly but may be used more if needed.

Future demand placed upon most of these activities is expected to accelerate throughout this decade as resource management intensifies. The public demand for access will increase as population increases Resistance to grant public rights-of-way is likely to also increase.

Soils

Soils are highly variable regarding the degree of development and source of parent material across the Forest. Generally, soils have developed out of parent material of granite, schist, sandstone, shale, limestone, conglomerates, and glacial deposits and are low to moderate in fertility. In certain areas, a heavy clay subsoil causes soil slippage with or without any surface disturbance

The Forest soil supply is essentially fixed, renewing itself by the slow weathering of bedrock over periods of several hundred years. The role of soils management is to conserve this fixed supply of soil by minimizing erosion. This is accomplished by inventorying soil characteristics, monitoring the use of other forest resources, and providing mitigation measures for reducing erosion

Soils management does not produce outputs when output is defined as goods, services, and products which are purchased, consumed, or used directly by people. However soil is a critical component in the production of timber, range, and forage; as well as general forest vegetation Soils management is one factor in determining whether that production will increase, remain constant, or decrease over time. Soils management is a support element for the resource elements which produce outputs.

An important factor in determining soil erosion potential for an area is the degree to which that area is cleared of vegetation by other resource development activities In general development will cause greater soil erosion than preservation when applied to an area The level at which soil erosion will occur during the 50-year planning horizon is directly related to the management emphasis of an area.

Little current data is available on which to base soil erosion calculations. As surveys are completed, soil erosion losses may be calculated using the Universal Soil Loss Equation or the newly developed water erosion prediction pfoject model (WEPP).

***NEW TEXT**

A soil resource inventory for the Forest is scheduled to be completed by 1991. 50,000 acres remain to be inventoried. ***END NEW TEXT***

Continuing public concern will require increased management emphasis on maintaining soil productivity

NEW TEXT

Facilities

The Forest has 3,329 miles of road under jurisdiction of the Forest Service. There is additional county and U.S /state highway milage within the Forest.

About 40 miles of road are constructed or reconstructed annually. With 1072 miles of gravel surfaced roads and a 20 year average road surface life, over 53 miles of road per year needs to be reconstructed or resurfaced to maintain adequate access to the Forest for all users as well as to protect the original road investment. The gravel roads are mostly the arterial and collector roads which provide the primary access to the Forest. Local roads are being constructed predominately by timber and mineral resource activities.

County road departments maintained 1,675 miles in 1989 under cooperative agreements

Administrative facilities on the Forest include office buildings, work centers, and other service and storage facilities. A total of 98 buildings are owned by the Forest. A facilities master plan has been completed for the operation and maintenance of all buildings. ***END NEW TEXT***

The Forest is responsible for 18 dams owned by the Forest Service, 81 bridges, 63 water systems, 2 waste water and treatment plants, and one aerated lagoon. In addition, the Forest administers special use permits for 230 dams and 241 ditches and canals

NEW TEXT

Travel Management

The Forest Travel Maps and Travel Availability Guides display roads, trails, and areas that are open, restricted, or closed by season and by travel mode (e.g. 4WD, OHV, motorcycle, mountain bike, horse, foot). The Grand Mesa Travel Map is currently being revised. Revision of the Uncompahgre and Gunnison Travel Maps will follow the completion of the Grand Mesa Travel Map. The Travel Availability Guides, which supplement the travel maps, are updated 3 times per year to keep specific road and trail information current.

The current travel management maps and guides were developed by considering.

- The physical and biological characteristics of the land. These characteristics include; slope steepness, soil erodibility; vegetative recovery potential; previous history of damage; wildlife and fisheries protection; proximity to streams and increased sedimentation; and other unacceptable resource damage such as loss of visual quality.

- Administrative and management concerns. These concerns include: making management areas large enough for efficient and effective law enforcement and administration, achieving a balance of recreation opportunities such as semi-primitive non-motorized and semi-primitive motorized, delineating the area boundaries on a map so they are easily recognized by the public in the Forest (i.e. using streams, roads, ridge tops for boundaries); and providing consistency between ranger districts, national forests, and adjacent lands such as the BLM

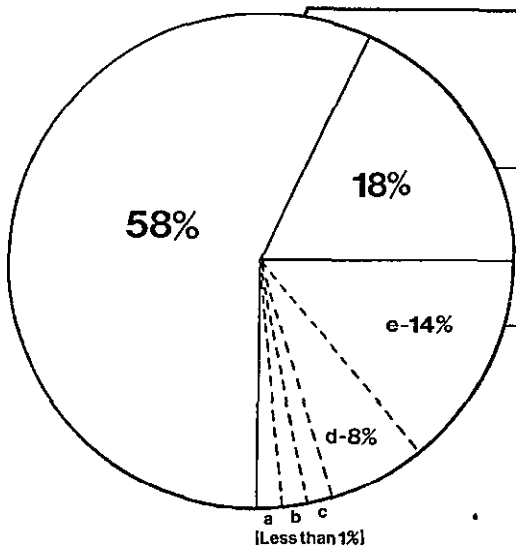
Wilderness areas, research natural areas, and special interest areas are closed to all motorized vehicles. Bicycles are also prohibited in Wilderness areas.

Arterial and collector roads are usually open with the exceptions of seasonal or wet weather closures to protect the road bed from damage and reduce resource damage such as erosion and siltation of streams. Where roads are within restricted areas, they would remain open for access to private land or multiple use activities. Examples of such activities are logging, firewood access, reservoir administration and hunter access. Roads may be closed in a restricted area to further enhance wildlife seclusion, prevent unacceptable resource damage, avoid high hazard locations, or to reduce maintenance costs All single purpose, newly constructed, roads are closed Roads in open areas may be either open or closed based on the same criteria used above for roads within restricted areas Roads and trails are managed as open, restricted, or closed based on the management objectives of the area through with they pass, the land's physical characteristics, and the prevention of unacceptable resource damage. ***END NEW TEXT****

Figure II-6 displays the acres open, closed, or restricted to motorized vehicle use on the Forest

FIGURE II-6

TRAVEL MANAGEMENT



Travel Area Designation		Acres
OPEN		1,725,946
CLOSED		517,898
RESTRICTED		
a Closed to snowmobiles	12,846	
b Special orders	13,419	
c Road and trail closures	24,027	
d Seasonal OHV closures	245,784	
e Year-long OHV closures except on designated routes	413,266	
SUBTOTAL OF RESTRICTED		709,342
TOTAL NATIONAL FOREST AREA		2,953,186

NEED TO ESTABLISH OR CHANGE MANAGEMENT DIRECTION

The Forest planning process included a determination of the need to change management direction This was accomplished by assessing the current situation, determining production potentials, and reviewing the public issues and management concerns of the Forest The following possible changes in management direction were identified.

Vegetation

Vegetation is the dominant landscape feature of the Forest. Low vegetation treatment levels combined with an active wildfire suppression program in the past have resulted in a Forest covered with mature, slow-growing vegetation Emphasis should be increased to treat vegetation where treatment best meets the goals and objectives of the Forest, provides multiple-use benefits, is cost-efficient, and best meets the need of vegetation

Recreation

Demand for National Forest System developed recreation will exceed supply after 1990 The Forest can expect a direct impact on recreation from population increases in the planning area in future years.

Budget constraints have forced more developed sites to be managed at a reduced service level or closed. Extended management at the reduced service level will shorten the design life of recreation improvements Emphasis should be given to maintenance and rehabilitation of existing facilities

Management direction should accommodate the expected increase in developed recreation use through expansion or new site construction. This will require a capital investment program to accommodate 1 3 million recreation visitor days by year 2030 To resolve site-specific problems, additional developed recreation capacity will be required by 1985.

There is a need to relocate, remove, or convert inefficient developed recreation sites.

Dispersed winter recreation opportunities should provide increased cross country ski and snowmobile trails, trailheads, sanitation facilities, and information signing

The Continental Divide National Scenic Trail should be evaluated and protected for recreation use

Fish and Wildlife

Fishing demand on the Forest is met largely through artificial stocking programs. Emphasis should be increased on fisheries habitat management to bring key fisheries up to their potential Stocking programs by the State will still be needed to meet demand.

Wildlife population goals for major species should be established in agreements with the BLM and the DOW.

Old Growth

Old growth forests are valuable as diverse and productive ecosystems and should be protected and managed Increased emphasis on the definition, inventory, and management to provide perpetual maintenance of old growth in sufficient quantity and distribution is needed.

Range

District Rangers are working with their counterparts in the BLM to identify opportunities for coordinated range management and administration.

Timber

Increased emphasis is needed to enhance opportunities for meeting firewood demand The Forest should monitor and evaluate anticipated and actual timber growth response where management activities occur.

Water

Emphasis should be directed toward incorporating water augmentation objectives in vegetation treatment design Water yield increases should be an objective of vegetation treatment. The Forest should assess cumulative impacts of all activities, both past and present, on water quality in third and fourth order watersheds.

Minerals

Emphasis should be given to oil, gas, geothermal, and mineral exploration and development outside wilderness areas

Management direction should be established to monitor the mineral induced growth within and adjacent to the Forest Coordination between the Forest and Region should develop a Regional program to monitor mineral industry growth This will provide a consistent approach to planning and will eliminate duplicating efforts between Forests

Facilities

The Forest should determine the most cost-efficient road management level Consideration must be given to maintenance costs and capabilities within budget and manpower constraints Long-term economic efficiency plays an important role; continuous maintenance may be more efficient than reconstruction costs.

Travel management direction is in need of refinement The existing travel Plan lacks continuity between Ranger Districts. Consideration must be given to the access needs of the area, the physical land capabilities, and the resource compatibilities such as motorized recreation with wildlife.

THE FUTURE

This section describes the expected future condition of the Forest after implementation of the Plan. It is divided into two parts The social and economic future, and the physical and biological future

This is a multiple-use Forest Plan. The Plan provides direction that is consistent with multiple-use, sustained yield objectives. Management activities, prescriptions, and outputs reflect this multiple-use concept An integrated mix of outputs in scheduled for the 50-year planning horizon. The social resource is equally important The Plan addresses existing public issues and management concerns, and provides the framework to identify and address new issues as they emerge

This Plan will be coordinated with policies, programs, and objectives of other Federal agencies, State, and Local governments Such coordination will at least ensure a mutual understanding, if not a compatibility, with each other's goals

PHYSICAL AND BIOLOGICAL FUTURE

Vegetation treatment will be directed to best meet the goals and objectives of the Forest. Treatment will also provide multiple-use benefits and be cost-efficient Vegetation treatment will be directed towards the following multiple-use benefits

NEW TEXT

- Providing wood fiber;
- Increasing tree growth and vigor;
- Increasing the forest's resistance to insect and disease infestations;
- Reducing unwanted fuel accumulations;
- Increasing big game winter range;
- Improving range conditions;
- Increasing water yield without impairing water quality.
- Maintaining industries dependent on National Forest System land management,
- Increasing non-game wildlife habitat diversity by increasing edge. ****END NEW TEXT****

The increased demand above existing capacity for developed recreation opportunities will not be met The Forest will meet 50% of the increased demand above existing capacity for National Forest System developed recreation after 1990. The Plan will meet 79% of total developed recreation demand at the end of the 50-year planning horizon This allows the private sector to meet part of the demand for developed recreation. The Forest will reduce the percentage of total demand met over the 50-year planning horizon from 100% in decade 1 to 96, 89, 82, and 79% in decades 2 through 5. Total developed recreation capacity will increase from 744,000 RVD's annually in decade 1 to 1,012,000 RVD's annually in decade 5. Approximately 45% of the sites will be operated at the full service management level.

Approximately 17% of the Forest will be managed for semi-primitive non-motorized recreation. Trail management will be emphasized, 30% of the existing Forest trail mileage will be reconstructed during the first decade (1981-1990). Fifty miles will be constructed or reconstructed annually over the planning horizon.

Wilderness management will emphasize primitive wilderness settings. In the Plan, 13,599 acres of Cannibal Plateau are suitable for inclusion in the National Wilderness Preservation System. This could increase the total wilderness acres on the Forest to 515,376 acres, 17% of the total Forest acres. No acres of Fossil Ridge are suitable for inclusion in the National Wilderness Preservation System.

The Forest intends to increase winter range carrying capacity will increase over current levels. This is due to the aspen habitat management and other vegetation treatments. Aspen treatment will be maintained at 500 acres annually over the planning horizon for wildlife habitat. The Plan schedules ****NEW TEXT**** 538,036 acres to be managed for wildlife habitat emphasis. ****END NEW TEXT****

The demand for livestock forage production will not be met. Range ecological conditions will improve through intensified grazing systems designed to enhance plant vigor and production.

NEW TEXT Demand for firewood will be met through 1996 providing 7.0 million board feet annually.

The Plan will increase annual water yields over the first ten years by 11,100 acre feet over the current situation This will be accomplished through vegetation treatment. ****END NEW TEXT****

Seventeen planning questions were identified through the Forest planning process. They represent the major public issues and management concerns and describe the physical and biological conditions of the Forest. The planning questions must be addressed if the Plan is to provide appropriate and effective management direction for the Forest. A detailed discussion of the future related to each planning question follows:

Planning Question 1 How much and what type of recreation opportunities should the Grand Mesa, Uncompahgre, and Gunnison National Forests provide?

This planning question deals with the quantity and location of developed recreation facilities on National Forest System land There is a need for adequate up-to-date developed recreation facilities for winter and summer use Existing developed recreation capacity is inadequate to meet increasing demand. An issue related to this planning question is the extent to which the Forest should compete with the private sector in providing developed recreation opportunities not available in the resource of dispersed recreation opportunities not available in the private sector. If management was oriented more toward providing dispersed opportunities, part of the developed recreation demand could be met by the private sector.

The Plan responds to this planning question by meeting 50% of increased demand above existing capacity for National Forest System developed recreation opportunities after 1990. There is an opportunity for the private sector to supply developed recreation opportunities to meet demand not supplied by the Forest. Off National Forest System land, the private sector and other government agencies will be indirectly encouraged to meet demand. The Forest will provide this indirect encouragement by avoiding competition with other facilities On National Forest System land, concessionaire-operated sites will be considered in the annual program planning and budgeting process. The Forest will respond to proponent interest in developing private recreation facilities through the special use permitting process Development level, capital investment requests, and management levels will be specified in concessionaire agreements or special use permit requirements based on site-specific needs

The Forest will manage 331,425 RVD's at full service management level at the end of the first ten years of the Plan Efficient campground management will lead to relocation, removal, or conversion of some sites One hundred seventeen camping units will be constructed by 1990 and an additional 40 will be constructed by 1995. Appendix A displays the fifty-year capital investment action plan for developed recreation. Table II-24 displays the developed recreation use for the Plan.

TABLE II-24

DEVELOPED RECREATION USE AND PROJECTED DEMAND
(Thousand Recreation Visitor Days Per Year)

Time Period	Non-skiing Developed Recreation		Downhill Skiing	
	Use	Demand	Use	Demand
1991-2000	778	812	502	502
2001-2010	866	968	689	689

The Plan schedules the following developed recreation construction and reconstruction activities by 1990: Convert Crag Crest and Eggelston campgrounds to day use facilities, Expand Lakeview campground; and construct Mary E. and Grand Mesa campgrounds. Currently in these areas demand for developed recreation exceeds capacity. Appendix A displays the fifty-year capital investment plan for developed recreation. Chapter III, Forest Direction and Management Area Prescription 1A, provides for existing and proposed developed recreation sites. These sites include existing and proposed campgrounds, picnic grounds, trailheads, visitor information centers, summer home groups and waterbased support facilities.

Demand for downhill skiing opportunities can be met by expanding existing sites. Expansion will be permitted to meet demand. Crested Butte, Powderhorn and Telluride have approved master plans. The Crested Butte master plan includes expansion onto Snodgrass.

Potential long-term capacity for downhill skiing will be 35,600 persons at one time, and is displayed in Table II-25.

TABLE II-25

DOWNHILL SKI AREA CAPACITY (Existing Sites)**

Area	Existing PAOT*	Existing MRVD*	Total Approved Master Plan Capac. PAOT*	Total Approved Master Plan Capac. MRVD*	Potential Capacity PAOT*	Potential Capacity MRVD*
Crested Butte	4,050	341 7	10,700	902 8	10,700	902 8
Monarch	0	0	0	0	5,400	437.5
Powderhorn	1,800	147 4	4,500	368.4	4,500	368.4
Telluride	2,800	248.5	15,000	1,331.2	15,000	1,331 2
TOTALS	8,650	737 6	30,200	2,602.1	35,600	3,040 0

*PAOT = People at One Time
MRVD = Thousand Recreation visitor days
** The existing Monarch Ski Area is on the San Isabel National Forest. It could potentially expand onto the Forest. The figures represented here *exclude* the San Isabel capacity

The Forest will retain downhill skiing opportunities on eight potential sites identified in the *Final Rocky Mountain Regional Guide*. Management activities will be compatible with their long-term future as downhill ski areas. Chapter III, Forest Direction and Management Area Prescription 1B, provides for existing and potential winter sports sites. Management integrates ski area development and use with other resource management to provide healthy tree stands, vegetation diversity, forage production for wildlife and livestock, and opportunities for non-motorized recreation

Planning Question 2 How much roadless, non-wilderness recreation opportunity should the Forest provide and where should it be located?

The major parts of this planning question involve conflicts between the motorized and non-motorized types of recreation uses Some individuals want additional opportunities for non-motorized recreation activities such as hiking, cross-country skiing, hunting, and fishing; and consider too much of the Forest roaded. Table II-26 displays the average annual recreation demand for dispersed recreation on the Forest.

TABLE II-26

DISPERSED RECREATION DEMAND
(Thousand Recreation Visitor Days Per Year)

Time Period	Dispersed Recreation	Off-Road Motorized	Total Dispersed Recreation
1991-2000	1,727	236	1,963
2001-2010	2,058	281	2,339

The Plan responds to this planning question by meeting the demand through 2030 for dispersed recreation, both motorized and non-motorized. Current dispersed recreation capacity on the Forest is 10.2 Million RVD's annually.

The Plan allocates semi-primitive non-motorized recreation management to 482,400 potential acres outside of wilderness areas. Roads within this area will be managed to provide semi-primitive non-motorized opportunities, to meet wildlife and other resource objectives, or to reduce maintenance costs. Some acres will be roaded for resource projects. Where roading occurs, local roads will be closed after project completion and returned to a non-motorized setting

Dispersed recreation capacity will be increased. Increased trail construction and reconstruction will contribute to the increased capacity.

Chapter III, Forest Direction and Management Area Prescription 2A, emphasizes semi-primitive motorized recreation opportunities Those opportunities include snowmobiling, four-wheel driving, and motorcycling. Chapter III, Forest Direction and Management Area Prescription 2B, emphasizes rural and roaded-natural recreation opportunities Motorized and non-motorized opportunities include driving for pleasure, viewing scenery, picnicking, fishing, snowmobiling, and cross-country skiing. Chapter III, Forest Direction and Management Area Prescription 3A, emphasizes semi-primitive non-motorized recreation opportunities in roaded and unroaded areas. These opportunities can include hiking, horseback riding, hunting, and cross-country skiing.

Chapter III, Forest Direction, Management Activity Transportation System Management L01 provide travel management direction to ensure all dispersed recreation opportunities. Chapter III, Forest Direction, Management Activity Trail System Management L23 provides direction for the Continental Divide National Scenic Trail.

Planning Question 3

What type of wilderness management is needed to maintain the quality of the recreation experience in existing and proposed wilderness areas?

The planning question addresses the type of wilderness management needed to maintain a quality wilderness recreation experience. The major issues center around conflicts between wilderness use and range resource management, and between difference types of wilderness users.

The planning question addresses the type of wilderness management needed to maintain a quality wilderness recreation experience The major issues center around conflicts between wilderness use and range resource management, and between difference types of wilderness users.

The Plan schedules 280,330 acres of wilderness (60%) to full service management level and 186,887 acres (40%) to the reduced service management level Opportunities for solitude and low visitor contact are provided by emphasizing primitive wilderness settings on 185,464 acres.

Additional wilderness settings are: semi-primitive 176,278 acres; and pristine 105,475 acres. In wilderness, the settings are also the management area prescriptions Chapter III, Forest Direction and Management Area Prescriptions 8A, 8B, and 8C; provide wilderness management direction.

Dispersing wilderness users will be achieved through a wilderness permit system when use exceeds recreation opportunity spectrum guideline for user density if indirect methods of shifting use are not successful. Management Activity Wilderness Area Management B02

Planning Question 4

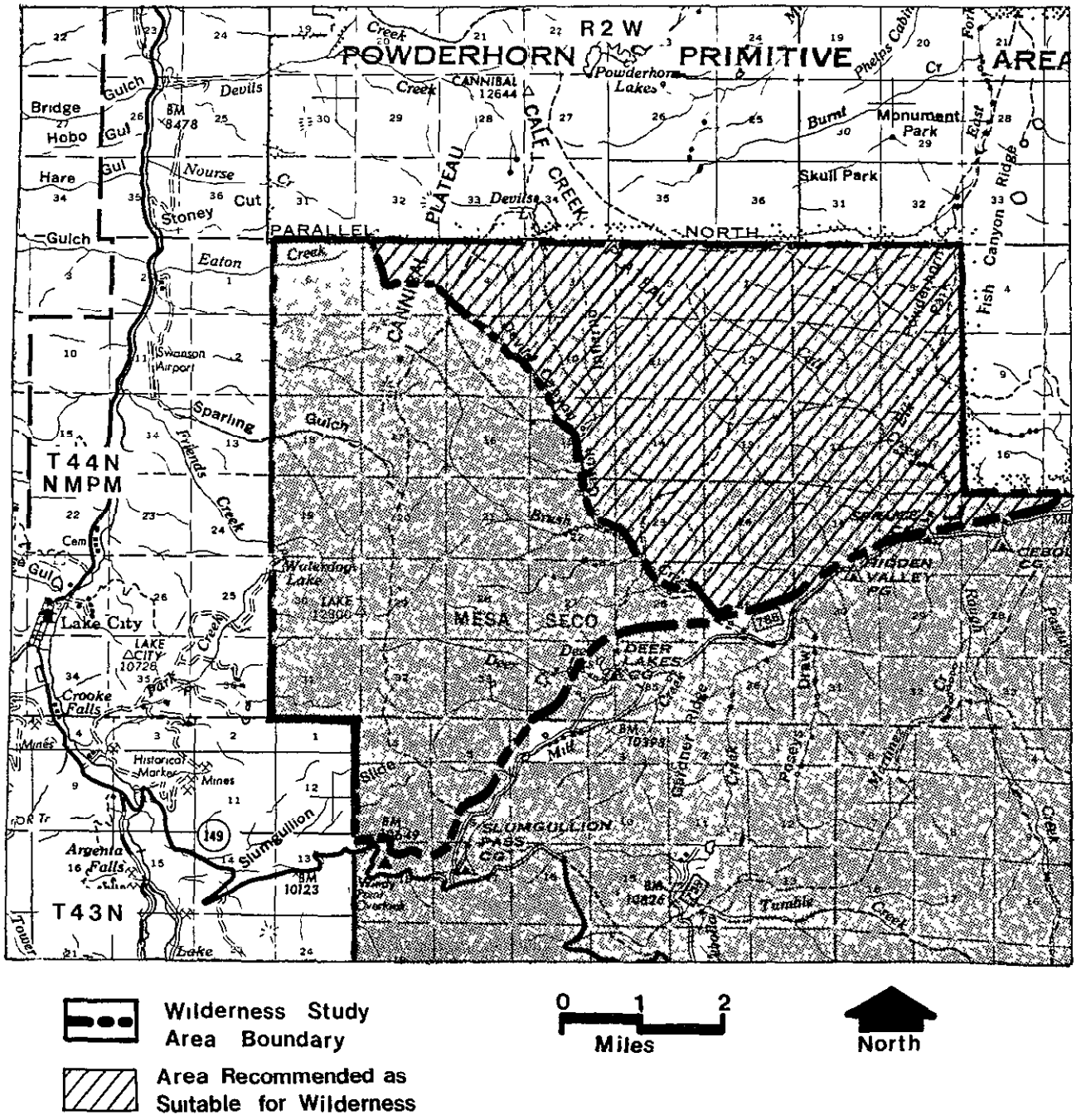
Should Cannibal Plateau Further Planning Area and Fossil Ridge Wilderness Study Area be recommended for inclusion in the National Wilderness Preservation System?

This question addresses the suitability of Cannibal Plateau Further Planning Area and Fossil Ridge Wilderness Study Area for inclusion in the National Wilderness Preservation System. The Colorado Wilderness Act identified Fossil Ridge a Wilderness Study Area and retained Cannibal Plateau's Further Planning Area designation.

In the Plan 13,599 acres (Source: *Section by Section Review of Land Status Atlas) of Cannibal Plateau Further Planning Area are suitable and no acres of Fossil Ridge Wilderness Study Area are suitable for inclusion in the National Wilderness Preservation System The area designated wilderness on the Forest will increase if the suitable land is added to the National Wilderness Preservation System. Figure II-7 displays the portion of Cannibal Plateau Further Planning Area suitable for wilderness.

FIGURE II-7

CANNIBAL PLATEAU FURTHER PLANNING AREA
(Suitable for inclusion in the National Wilderness Preservation System)



Planning Question 5 How much habitat (forage, cover, water) should be available for wildlife and fish?

This planning question addresses the wildlife (excluding deer and elk) resource.

Public issues and management concerns are related to questions concerning mineral exploration and development, transportation, and municipal watersheds. The general scope of public issues and management concerns is to provide for the protection and management of wildlife habitat, including threatened and endangered species. Issues were raised on how fishery habitat will be managed.

A review of endangered, threatened, and sensitive species was made during the Forest planning process Nineteen thousand, one hundred and four acres will be managed for threatened and endangered species. Chapter III, Forest Direction Management Activity Wildlife and Fish Resource Management C01, manages and provides habitat for recovery of threatened and endangered species. The management activity also manages and provides habitat for the Uncompahgre Fritillary Butterfly and *Braya humilus* spp. *Ventosa* (no common name).

Oakbrush is scheduled for treatment to increase habitat diversity Chapter III, Forest Direction provides guidelines for the maintenance of dead trees and down logs as habitat for small mammals and birds.

NEW TEXT The Plan provides 538,036 acres to be managed for wildlife habitat emphasis. ***END NEW TEXT*** Vegetation diversity is enhanced Vegetation treatment through commercial timber sales will be designed and laid out on 57,528 acres of suitable timber land which have wildlife habitat improvement as their objective. Forty structural improvements are scheduled for fisheries habitat improvement annually for the first five years of the Plan Appendix C displays the wildlife habitat improvement action plan. Chapter III, Forest Direction and Management Area Prescription 4B, emphasizes habitat for management indicator species The goal is to optimize habitat capability and species numbers Chapter III, Forest Direction and Management Area Prescription 4D, emphasizes maintaining and improving aspen Aspen is managed to produce wildlife habitat, wood products, visual quality, and plant and animal diversity.

Chapter III, Forest Direction and Management Area Prescription 9A, emphasizes riparian area management Resource use will be managed to protect and maintain the riparian.

Planning Question 6 Where and how much forage should be allocated to big game use?

This planning question addresses National Forest System winter range carrying capacity for elk and deer The scope of this planning question revolves around providing the range resource compatible with the big game habitat

Most public issues and management concerns deal with conflicts between livestock grazing and big game Critical big game winter range is being lost outside the Forest boundary caused by subdivision of private land. Big game herd size is increasing and the loss of range is causing conflicts with grazing on the Forest Motorized recreation also can cause conflicts with big game through reduced habitat effectiveness

The Plan schedules and increase in the potential carrying capacity of National Forest System winter range from 82,700 animals in 1982, to 87,600 animals by 1995. Prescribed burning for wildlife will total 5,500 acres annually for the first ten years of the Plan, plus 500 acres annually of aspen habitat management and ten wildlife structures constructed annually. Approximately 57,528 acres of suitable timber land will be managed for wildlife emphasis over the 50-year planning horizon. Appendix C displays the wildlife habitat improvements action plan.

Winter range on the Forest totals 242,694 acres Approximately 36,389 forested acres and 206,305 non-forested acres will be managed for big game winter range. Chapter III, Forest Direction and Management Area Prescription 5A; provides big game winter range in non-forested areas. Management emphasizes winter range for deer, elk, bighorn sheep, and mountain goats Treatments are applied to increase forage production of existing grass, forb, and browse species or to alter planting, and mechanical treatments may occur Browse stands are regenerated to maintain a variety of age classes and species Chapter III, Forest Direction and Management Area Prescription 5B provides big game winter range in forested areas. Management emphasizes forage and cover for deer, elk, bighorn sheep, and mountain goats. Vegetation treatments are applied to increase forage production or create and maintain thermal and hiding cover.

Planning Question 7 Where and how much forage should be allocated for livestock use?

This planning question addresses allocation of the range resource between competing uses. The public issues indicated Forest users were not opposed to domestic livestock grazing, but were concerned with how much grazing will be permitted, and where it will occur in relation to other resource uses Public issues opposed to domestic livestock livestock grazing centered around riparian areas, wilderness, municipal watersheds, and water quality.

The demand for livestock forage production will not be met. Range ecological conditions will improve through intensified grazing systems designed to enhance plant vigor and production Intensive management involves relatively high costs yet results in greater yields per acre than other management types Intensive management on some sites allows other areas to be managed extensive. This will reduce conflicts from livestock presence.

Intensive management will be implemented through individual Allotment Management Plans Chapter III, Forest Direction and Management Area Prescription 6A, emphasizes improving rangeland to a satisfactory condition Condition is improved through vegetation treatment and soil restoration activities, improved livestock management, and regulation of other resource activities Chapter III, Forest Direction and Management Area Prescription 6B emphasizes maintaining rangeland in a suitable condition

Planning Question 8 How should Forest products be managed to supply commercial and non-commercial demands on the Forest?

This planning question addresses the timber management program on the Forest. Issues and concerns related primarily to firewood availability and wood products. Issues and concerns opposed to timber management centered around clearcutting, over-cutting in watersheds, and the Forest's role in supplying timber for the nation. Issues and concerns not opposed to timber management centered around firewood access, timber management needed to enhance other resources such as range and wildlife, getting unproductive forest land into production, and managing timber on a sustained yield basis.

Quality timber management practices include continuous stand inventory of suitable lands every ten years, allocation or harvest schedule of allowable sale quantity for ten years based on the stand inventory, development of environmental assessments providing site specific multiple-use alternatives, sale layout that meets the objectives of the chosen environmental assessment alternative, quality sale administration assuring all mitigation measures are carried out, and timely reforestation and timber stand improvement activities. This management level is required to meet the demands for commercial and non-commercial Forest products and to obtain the long-term sustained yield capacity.

NEW TEXT During the timber management amendment process, Planning Question number eight was expanded and the following six supplemental Planning Problems were developed:

Planning Problem 8A: Identify the demand for wood fiber and multiple-use benefits on the Forest

Planning Problem 8B: Determine whether commercial timber sales or non-commercial methods, or a combination of them, will produce the needed multiple-use benefits (other than timber benefits) in the most economically efficient manner.

Planning Problem 8C: Determine whether a "healthy forest" is necessary to produce needed multiple-use benefits, and whether vegetation treatment is necessary for a healthy forest.

Planning Problem 8D: Determine if it is appropriate for the Forest to continue a commercial timber sales program where costs exceed revenues. Determine what will be the impact on the local communities economic stability with this type of program "due to uncertainties over a continuation of a relatively high level of federal funding to support a timber program with costs greater than revenues" (MacCleery).

Planning Problem 8E: Determine if only financially efficient lands should be identified as suited for timber production, or if economically efficient lands should also be included. Decide which lands that are neither financially or economically efficient should be considered and why.

Planning Problem 8F: Determine how aspen should be managed on the Forest. Should it be managed to achieve non-timber multiple-use benefits (only), for wood fiber for industry (only), or for both non-timber benefits and wood fiber?

The Plan Amendment addresses these supplemental planning problems as follows:

Wood Fiber Demand (Planning Problem 8A)

Current demands for wood fiber were determined in the Amendment analysis. The Plan meets the historic sawtimber demand It meets 60% of the estimated current waferwood demand and 55% of the expected waferwood demand assuming 28% growth by 1993. The waferwood supply is not completely met with aspen, but lodgepole pine is included in the ASQ to help meet the demand. The demands of the smaller timber industries in the area which process aspen sawtimber and posts, poles, and props is met.

Multiple-Use Benefits and Healthy Forests (Planning Problems 8B and 8C)

A significant non-priced benefit of a vegetation management program is the reduction in risk of insect and disease infestations and a reduction in wildfire potential An epidemic of mountain pine beetle exists on a portion of the Forest now, and the commercial timber sale program is the most efficient manner in dealing with controlling the epidemic. If infestations are not prevented through a commercial timber sale program, the future costs using mechanical and chemical treatments have proven in the past to be much more expensive.

Other benefits of vegetative treatment through a commercial timber sale program include:

- a reduction in future wildfire potential by reducing fuel loadings and improving access.
- create and maintain existing vistas.
- provide opportunities, especially in aspen, to provide transitional forage for domestic livestock and wildlife and improve distribution thereby providing rest for other heavily used areas.
- improve the quantity and quality of winter range in forested areas and improve the quality of summer range for wildlife species.
- maintain or increase wildlife habitat diversity by altering the age structure of timber stands through a planned and deliberate process.

Economics (Planning Problems 8D and 8E)

In the Amendment analysis, the Stage II Suitability Analysis identified no financially efficient timber stands at current stumpage prices. Table II-27 displays the financial and economic efficiencies of the products offered under the Plan:

TABLE II-27

FINANCIAL AND ECONOMIC EFFICIENCY (First Decade ASQ)

Product	Financially Efficient	Economically Efficient
Conifer Sawtimber	-	25,000 MBF
Conifer POL	-	-
Aspen Sawtimber	-	-
Aspen POL	-	-
Totals	-	25,000 MBF

Although the volume scheduled in the Plan is not financially efficient, it is being scheduled for the following reasons:

- Providing a source of wood products through a commercial timber sales program is one of the purposes of managing a National Forest. The Plan proposes moderate levels of timber harvesting Approximately 600 jobs and 8.5 million dollars in employee income are dependent on GMUG NF timber. The Forest believes a deficit timber program which loses 1 million dollars annually (at current prices) and does not diminish tourism related jobs is worth the 8.5 million dollars in timber related income it helps to maintain.

- An epidemic infestation of mountain pine beetle is occurring in the ponderosa pine on the southern end of the Uncompahgre Plateau During the next 3-5 years it is important that these stands be treated to reduce their density and thereby prevent further loss In addition, a historical demand exists in the Norwood area for ponderosa pine for lumber production. Approximately 1,000 MBF annually has been scheduled, although most of the decade limit of 10,000 MBF is presently planned for sale in the next 2-4 years

- Approximately 2,200 MBF per year of lodgepole pine POL (waferwood) will be scheduled for commercial sale after 1994 (allowing time for the "pipeline" process of sale planning and preparation). The waferwood demand was not met with just aspen and the additional volume was included in the ASQ to help meet the demand In addition, the Forest believes it is important to treat lodgepole pine stands to reduce mountain pine beetle risks and to reduce the potential for future expenditure of federal funds to treat epidemics or to suppress wildfires

This Plan has assumed timber stumpage prices. The degree of success in achieving financially efficient sales depends, to a large extent, on increased future stumpage prices The wood market is one of the more cyclic markets and therefore sales that are now assumed to be financially inefficient (based on assumed stumpage prices) may in the future be more financially efficient. While it may seem appropriate to not offer inefficient sales, this practice would result in an unstable economic environment for sawmills dependent on National Forest timber, their employees, and the local communities. Because this Plan also addresses community growth and development, a fluctuating timber program based on individual timber sale's financial efficiency would conflict with the objectives of the Plan.

Conversely, it is important that the implementation of the Plan be in accordance with the economic principles which make up the rationale for selection of the Plan. As an example, if during monitoring it is determined that aspen timber sales are being planned or sold where the clearcut units are consistently less than 20 acres and the resultant access and preparation costs are high, then corrective action needs to be taken to improve their efficiency

The Plan will contribute towards sustaining the Louisiana Pacific waferboard plant in Olathe and the associated 353 jobs. The 353 jobs represent an annual employee income level of $5,900,000 which will occur primarily in the Montrose, Olathe, and Delta areas and represents 2% of the work force in Delta and Montrose Counties. This is an important element of the political climate on the western slope of Colorado where economic conditions are strained

Aspen Management (Planning Problem 8F)

Table II-28 displays the acres of aspen identified in the original Plan and the Amendment analysis by timber suitability classifications

TABLE II-28

ASPEN ACRES

Classification	1983 Forest Plan	Amendment
Tentatively Suited	480,000	345,785
Suited	22,000*	163,918

* approximate

In response to an appeal of the original Plan, a publication titled Guidelines for Managing Aspen (known as the Guidelines) was published in 1985. This publication was prepared by "The Aspen Panel", a diverse group of interested people from the private sector and state and federal agencies The Guidelines were not prepared in compliance with NEPA procedures and do not represent a decision concerning aspen management.

The Forest later agreed, through a settlement agreement in response to an appeal of an aspen timber sale, to adhere to the principles in the Guidelines until this Forest Plan Amendment is in effect. The Forest agreed that wood fiber production would not be a primary objective in it's aspen management program. This was in keeping with the fact that only 22,000 acres had been classified as suited for timber production.

The aspen management direction in this Plan will supersede and eliminate the need for the Guidelines First, the wood fiber concern is resolved by designating, through the NEPA process of the SEIS, enough aspen lands as suited for timber production needed to meet the ASQ levels in the first decade and adhere to long term, sustained yield requirements. Suited aspen lands will occur on a variety of management areas and the standards and guidelines for the individual prescriptions will direct on-the-ground actions Wood fiber production can be a primary objective for aspen management, as long as the trees are on suited lands; other multiple use benefits and values will be achieved/protected to the extent that the standards and guidelines state Secondly, the proper planning process for analysis of timber sales is documented in Forest Service Manuals and Handbooks and complies with the NEPA requirements Further clarification and guidance, which incorporates some of the content of the Guidelines, is included in Chapter I of this Plan Amendment.

The Regional Guide (page 3-22 and 3-26) requires forest plans to identify the uses for which aspen will be managed and the acres of aspen that will be regenerated to ensure maintenance of the desired acreage All aspen types (conifer invaded, even age and self-regenerating) are included in the suited land base for wood fiber production and will be managed in accordance with the direction provided in the management area prescriptions. All 1,370 annual acres planned for treatment are expected to regenerate naturally. ***END NEW TEXT***

Planning Question 9 What surface resource uses should be permitted in municipal watersheds?

This planning question addresses the potential effects of recreation, range, timber, and minerals (mining and exploration) uses on the quality and quantity of municipal water supplies.

This planning question was formulated initially in response to potential adverse effects of mining and exploration activity on the quality of the municipal water supplies. There is a concern that minerals, timber management, and grazing activity is increasing and could degrade water quality

The Plan will permit uses that do not degrade water quality below Federal, state or Local water quality standards. Chapter III, Forest Direction and Management Area Prescription 10E, provides for municipal watershed and municipal water supply watersheds Management emphasizes protection or improvement of the water quality and quantity. Management practices vary from use restrictions to water yield improvement The primary objective is to meet water quality standards established for the individual watershed The prescription is applied to the Fruita Division (7,440 acres) Appendix G displays the water quality monitoring action plan and Appendix N displays soils monitoring action plan

Planning Question 10 How should the Forest respond to increasing demands for water?

The scope of the planning question includes public issues and management concerns for surface and groundwater management Surface water on the Forest is a national concern due to the location of the Forest at the headwaters of the Colorado River. Runoff from this area is critical to the water supply of the southwest United States where much of the water generated on the Forest is used. There is an increasing demand for water on the western slope. New industries also require additional water.

NEW TEXT The proposed action calls for an increase in water flows, as a result of vegetative management, of approximatley 11,100 acre feet annually. This increase is estimated to be an 0.4% increase over the background level of 2,866,000 acre feet annually. The additional water is valued at $378,954 per year in the first decade and increases the present net value for the 150 year planning horizon by $16,243,000 when discounted at 4%. ***END NEW TEXT***

Planning Question 11 *How should the Forest coordinate mineral activity with other resource values?*

This planning question addresses the potential effects of mineral development on all the other resources; particularly wilderness, wildlife, water, and visual

The planning question was formulated from issues and concerns relating to increased mineral exploration and development activity throughout the Forest. Minerals development may conflict with recreation use, wildlife habitat, or other uses, but each situation will be evaluated separately. In most cases stipulation, coordination, and administration will resolve possible conflicts.

Table II-29 summarizes the land recommended available for mineral leasing on the Forest; the figures apply to all National Forest System land disclosed in this Plan; including unclassified land, designated wilderness, further planning area, and wilderness study area

Chapter III, Forest Direction, Management Activities Minerals Management - Oil, Gas and Geothermal G02 and Minerals Management - Coal, Leasable Uranium and Non-energy Common Minerals Materials G03; provides direction for mineral exploration and development.

TABLE II-29

MINERAL LEASING SUMMARY

Leasing Availability Recommendation	Wilderness Acres	Unclassified Acres	Total Acres
* No Lease	285,992	185,494	471,486
Lease with Surface Occupancy	76,418	2,041,637	2,118,055
Lease without Surface Occupancy	104,807	210,679	315,486
Total Acres	467,217	2,437,810	2,905,027

* Includes the five displayed wilderness areas and the area identified suitable for wilderness classification for Cannibal Plateau Further Planning Area.

Oil and gas deposits within the no surface occupancy areas could be recovered through directional drilling or other techniques which will not disturb surface resource values When commercial timber harvest is scheduled on no lease areas, leasing will be recommended with the limited surface use stipulation. Leases issued for land which is part of the National Wilderness Preservation System should include reasonable stipulations required by Section 4(d)(3) of the Wilderness Act Leases issued for land which is recommended suitable for inclusion in the National Wilderness Preservation System would include stipulations, provided by the 1920 Minerals Leasing Act. These stipulations are contained in Appendix H.

Approximately 755,862 acres have been identified having "high" to "moderate" suitability for coal leasing through application of the BLM Coal Unsuitability Criteria (43 CFR 3461), 224,491 acres of the suitable acres were assessed as unsuitable for coal leasing. These criteria are displayed in the appendices in the 1983 Final EIS.

Limits on the time available for staking and validating claims and obtaining leases in designated wilderness are established in the 1964 Wilderness Act The Act provides that the United States mining and mineral leasing laws apply within wilderness areas until midnight December 31, 1983 Effective January 1, 1984, wilderness areas are withdrawn from mineral entry This withdrawal is subject to valid claims and existing leases Valid claims and existing leases on the withdrawal date are still available for further exploration and development Claims that lack discovery by the above date are void.

After midnight December 31, 1983, new leases will not be available in wilderness areas. Leases obtained within wilderness or wilderness study areas prior to the above date are subject to lease stipulations designed to protect the wilderness environment. These are included in the appendices accompanying the Plan. In the case of coal leasing, wilderness designation of the study area will preclude coal leasing. This is subject to existing rights. Under non-wilderness designation, the question of suitability or unsuitability for coal leasing will be determined by applying BLM's unsuitability criteria

Measures will be designated to meet the management are direction for the areas involved. Road closures and travel restrictions will be utilized to comply with management area restrictions will be utilized to comply with management area direction. Where impacts on big game are significant, mitigation, in the form of off-site habitat improvement could be required.

Planning Question 12 What type of transportation system is necessary to manage the Forest and its resources?

This planning question addresses the transportation requirements of all resource elements. Public issues indicate that environmental damage is occurring from indiscriminate motorized vehicle use and this dispersed motorized recreation use is also impacting other users and resources.

NEW TEXT Existing roads will be open, restricted, closed, or obliterated to manage public and administrative road traffic These actions will support resource management objectives and bring maintenance needs into balance with the Forest's maintenance capabilities. Protection of both resources and investments and user safety are the basic criteria that are integrated into travel management. Specific direction for travel management is given in the Forest Direction. See Chapter III, Forest Direction, Management Activity Transportation System Management.

Economic analysis indicates that it is more cost effective to close roads with gates and maintain at reduced maintenance levels than to keep roads open. Keeping the roads open and maintained provides benefits related to firewood access and dispersed recreation, but has an impact on wildlife habitat capability (seclusion) and maintenance costs. All newly constructed roads with a single purpose (e.g. timber, energy, minerals) will be closed to motorized use. Exceptions may be made where justification for motorized use of the road is documented in the environmental assessment.

The number of miles of Forest roads will increase by 7% over the next decade. Local road construction will total approximately 240 miles for the next ten years to access timber sales. Local road mileage to access oil and gas, mineral, and other special use activities are not predictable. Those single purpose local roads are financed by the special use permittee. On roads open to all users, the permittee pays a commensurate share of maintenance and for any needed road improvements for their operation.

More than 50 miles of existing gravel roads need to be reconstructed or re-surfaced each year to protect the initial road investment and to provide a safe, comfortable, and adequate access for all Forest users To complement the re-surfacing, an expanded program of dust abatement/gravel stabilization is needed to improve the recreation experience for all users as well as improve accessibility for users that desire a smoother, more comfortable surface such as RV owners and forest visitors in passenger cars Appendix O displays the ten-year arterial/collector road construction/reconstruction plan.

Financing for improvements to the primary roads (i e arterial roads) that access the Forest from State highways, and are usually routes through the Forest, is available from the Forest Highway program. Once the improvement is completed, jurisdiction for the entire route is transferred to the public road agency (usually a county) and that agency assumes responsibility for maintenance and operation of the road See Appendix O for a list of the designated Forest Highway routes Currently, in the 7 year Forest Highway action plan for the State of Colorado, three bridges are scheduled for replacement on Gunnison County Road 12 (Kebler Pass Road, FH 71). The Forest's priorities for inclusion in the action plan are the Cottonwood Pass Road (FH 59) from Almont to Taylor Park Reservoir, and FH 71, Somerset - Crested Butte (Kebler Pass Road) The Forest and counties have many miles of road that meet the Forest Highway criteria, but funding is very limited compared to the needs of other Forests. ***END NEW TEXT***

Planning Question 13 How should the Forest handle the problems caused by private land within and adjacent to the National Forest?

Public issues and management concerns related to land adjustments either express a desire for more access to the Forest or identify conflicts with private land in or adjacent to the Forest. There is loss of wildlife habitat winter range caused by subdivision of private land. There are about 1,700 private acres within existing wilderness areas on the Forest.

The Plan will ensure that Forest land is accessible as needed to support management activities The Plan proposes 40 special use right-of-way grants annually for the first five years Chapter III, Forest Direction, Management Activity Special Use Management J01; provides direction for special use applications. Appendix M discusses the Forest's right-of-way acquisition program. Chapter III, Forest Direction, Management Activity Rights-of-Way and Land Adjustments J02, provides direction Landline locations will equal 25 miles annually for the first five years. Chapter III, Forest Direction, Management Activity Property Boundary Location J06, provides direction for prioritizing landline boundary locations Currently no land purchases are planned. Some acquisitions are planned through land exchange. Appendix K of the 1983 Plan summarizes the landownership adjustment program on the Forest.

Land exchanges which will result in the greatest public benefit will be given highest priority Table II-30 displays the lands program

TABLE II-30

LANDS PROGRAM (Average Annual)

Action	1991-2000	2000-2010
Land Exchange(Offered Acres)	240	240
Right-of-way Acquisition (Cases)	15	15
Occupancy Trespass (Cases)	23	10
Landline Location (Miles)	60	60
Special Use Management Right-of-Way Grants (Cases)	10	10

Opportunities were identified for possible jurisdictional land transfer between Federal agencies Appendix L of the 1983 FEIS discusses the criteria developed in cooperation with the BLM.

Planning Question 14 Where should the Forest provide utility corridors and how should they be managed?

This planning question addresses forest land used for rights-of-way for major transmission lines The primary concern is impacts on resources created by these utility rights-of-way.

The impacts will be reduced by concentrating the transmission rights-of-way in corridors. Chapter III, Forest Direction, includes measures to mitigate potential soil, water, and visual impacts resulting from the construction and reconstruction of transmission corridors Expanding compatible uses in existing corridors is emphasized over new corridor development. Growth on the western slope will require additional transmission capacity and transmission lines may cross National Forest System land

The Rocky Mountain Regional Guide establishes standards and guidelines to be used by the Forest in activities related to utility corridors. Chapter III, Forest Direction and Management Area Prescription 1D, provides for utility corridors on 4,535 acres Management emphasis is for major oil and gas pipelines, major water transmission and slurry pipelines, electrical transmission lines, and transcontinental telephone lines. Management activities within these linear corridors strive to be compatible with the goals of the management areas through which they pass

Selection criteria was identified to respond to applications for new transmission corridors. These are watersheds, visual quality objectives, visual absorption capability, wildlife winter range, land classification (i e wilderness, scenic areas), and existing transmission corridors.

Planning Question 15 Can service to the public and administration be improved with Forest or District boundary changes?

This planning question addresses the possibility of re-connecting District or Forest boundary changes; land transfer opportunities between the Forest Service and Bureau of Land Management (BLM); and between the Forest Service and National Park Service.

There are no district boundary changes proposed in the Plan.

The Forest has tentatively identified 89,250 acres for possible jurisdictional land transfer to the BLM The Forest has also tentatively identified 265,280 acres of BLM administered land for possible jurisdictional land transfer to the Forest. As of 1990, no land transfers have occurred. In addition, 760 acres have bee tentatively identified for possible jurisdictional land transfer to the National Park Service

Planning Question 16 How should the Forest manage significant cultural resources (and other special interest areas)?

The planning question addresses cultural resource protection.

The Plan will protect significant cultural resources by avoidance and/or study Cultural resource sensitivity areas will be determined by use of a predictive model. Areas of high sensitivity for cultural resources will be surveyed prior to ground disturbance. Chapter III, Forest Direction, Management Activity Cultural Resource Management A02 ensures that all activities will be compatible with cultural resource management goal.

The Gothic Research Natural Area will retain its designation Tabeguache and Escalante Creek will be recommended for management as research natural areas. Their management includes preserving, protecting, studying, and interpreting the botanical and zoological communities Chapter III, Forest Direction and Management Area Prescription 10A, provides for Research Natural Areas.

The Dry Mesa Dinosaur Quarry and the Slumgullion Earthflow National Natural Landmark will continue to be managed as special interest sites. Alpine Tunnel Historic District and Ophir Needle National Natural Landmark will be recommended for management as special interest sites. Their management includes preserving, protecting, and interpreting the geological formations and cultural resource. Chapter III, Forest Direction and Management Area Prescription 10C, provides for Special Interest Areas.

Englehart Park Archeological District will be recommended for management as a cultural resource site. It will be managed by avoidance to protect and preserve its special character. Black Face Geologic Feature will not be recommended for management as a special interest site

Planning Question 17 How should the Forest manage the visual resource?

This planning question addresses the adoption of visual quality objectives for National Forest System land Included is the concern that unless the visual resource is considered during planning and project activities, negative visual impacts are likely to occur The Forest Service Visual Management System develops a land stratification scheme to set a land classification frame of reference used in assessment.

The existing visual quality levels have been inventoried and they make up the following percentages of the Forest: Preservation - 15%, Retention - 6%, Partial Retention - 19%, Modification - 56%, and Maximum Modification - 4%.

The visual absorption capability inventory classified 29% of the Forest as low, 41% of the Forest as intermediate, and 30% of the Forest as high.

The local short and long-term consequences of some management practices such as road construction and timber harvest will have a net reduction on visual quality. While these activities may occur in certain portions of the Forest, other activities may be occurring at the same time in other parts of the Forest such as road obliteration and vegetation treatment to increase diversity and visual quality. Long-term timber management and other vegetation treatment projects will improve the visual resource. There will be no significant short or long-term decline in visual quality on the Forest. Short-term reduction in visual quality will be mitigated by Management Requirements in Chapter III, Forest Direction, Management Activity Visual Resource Management A04. Projects will be designed compatible with visual resources in such prescriptions as 1A, 1B, 1D and 2B. Each Management Are Prescription identifies a series of visual quality objectives

NEW TEXT

SOCIAL AND ECONOMIC FUTURE

Timber outputs are expected to decrease or remain constant over those provided by the 1983 Plan and will be reflected in the same or decreased employment, income, payments to counties from 25% of gross receipts, returns to the U.S. Treasury, net receipts, and total forest budget. Populations levels are expected to not be affected by the proposed increase in timber production, due to the current high unemployment rate. The majority of job and income increases will tend to occur in Delta, Mesa, & Montrose counties, where the bulk of current and *expected future timber production facilities reside.*

Total payments to counties will remain at their current general levels. The portion of total county payments contributed by 25% of gross Forest receipts will decrease or remain the same unless timber prices increase significantly. County payments from 25% of gross receipts, returns to the U.S. Treasury, and net receipts may increase if timber prices significantly increase in the future. The total budget will also increase along with the slightly larger timber program. Table II-31 displays the expected changes over those of the 1983 Forest Plan.

TABLE II-31

EXPECTED FUTURE CHANGES

Component	Units	Subunits	Change From Alt 1A
Employment	Jobs	sawtimber waferboard	- 123 *
Income	MM 1982 Dollars	sawtimber waferboard	- 1.3 *
Payments to Counties from 25% fund	MM 1982 Dollars		- $.007
Returns to US Treasury	MM 1982 Dollars		- $.002
Net Receipts	MM 1982 Dollars		+ $.112
Total Budget	MM 1982 Dollars		+ $.134

The waferboard industry currently provides an estimated 350 jobs and $5,900,000 in employee income annually, or roughly half the timber jobs and income in the Forest vicinity. A major Amendment issue is whether or not enough Forest timber will be available to keep the plant open Alternative 1A provides an estimated 11% of waferwood demand, while Alternative 1G provides 48%. Alternative 1G significantly decreases the risk of closing the plant. ***END NEW TEXT****

The area surrounding the Forest, Social Resource Unit H, is characterized by an expanding economy related to recreation and energy.

Implementing the Plan will most likely not result in major changes in the general economic future, although specific sectors are dependent on activities taking place on the Forest.

The Grand Junction HRU is expected to continue as the major retail trade, energy development service, and urban area of the Social Resource Unit. Present agriculture employment is less than 5% of the labor force in the Grand Junction HRU. The Uncompahgre HRU will continue to have diverse population. Downhill skiing and wilderness management will contribute to the expected increase in tourism The Collbran HRU is expected to remain primarily ranching, however oil and gas exploration could change the land use. The major industry in the Crested Butte HRU is downhill skiing and tourism. The North Fork HRU has a depressed coal mining sector. However, agriculture and tourism remain strong

Human resource programs carried out by the Forest will continue to emphasize employment and training programs for youth, older Americans, minorities, and the disadvantaged to the extent that budget allocations will allow.

The total population in the ten counties could increase by approximately 44% during the first decade of Plan implementation. Growth would be most actively realized in the energy sector. The major communities impacted would be De-Beque, Grand Junction, and Gunnison. A secondary area of high growth would be realized in the downhill skiing sector. The major communities impacted by this sector would be Telluride and Crested Butte. ***NEW TEXT*** Employment in the agricultural and timber producing sectors is expected to remain constant or decrease.

Table II-32 displays the changes in employment and income in the area directly affected by the Plan.

TABLE II-32

EMPLOYMENT AND INCOME COMPARISON

Economic Impact Area (EIA)	Units	Base Year 1988 *	Change from Base Year **
Employment			
EIA-214	# Jobs	59,130	- 47 to - 400
EIA-215	# Jobs	5,540	no change
Income			
EIA-214	MM$	1,496.6	- 0.5 to - 6.4
EIA-215	MM$	107.0	no change

* 1988 was selected as a base year because 1988 is the most recent year for which employment and income data exists.
** actual changes depend on whether or not the local timber industry chooses to remain in the area.
EIA-214 includes Mesa, Montrose, Delta, Ouray, and San Miguel counties.
EIA-215 includes Gunnison and Hinsdale counties

Table II-33 displays the average annual estimated payments to counties for the years 1991-2000.

TABLE II-33

ESTIMATED PAYMENT TO COUNTIES
(1982 Dollars)

County	Estimated Payment
Delta	25,003
Garfield	307
Gunnison	135,295
Hinsdale	19,775
Mesa	61,057
Montrose	33,831
Ouray	14,130
Saguache	35,129
San Juan	223
San Miguel	19,098
Total	343,878

Returns to the U S Treasury will remain constant although a significant increase in timber prices will increase returns to the U.S. Treasury.

The total average annual cost of implementing the Forest Plan for the next ten years will remain somewhat constant with less than 1% estimated change

Employment in the government sector is expected to remain constant unless budget allocations are drastically changed Capital investment will be increased only slightly from present levels.

RESEARCH NEEDS

During the Amendment analysis, and especially during development of the Monitoring Plan, additional research needs were identified They are listed below for consideration for research projects.

NEW TEXT

Fish And Wildlife

- A study to determine if the outputs from on-the-ground vegetative treatments are accurately computed by the HABCAP Model in terms of habitat capability & desired #'s of animals.

- An analysis of the response of specific management indicator species to vegetative treatment projects, the responses include population trends, distributions, relationship of actual increased habitat capability and resulting numbers of animals

Soils

- A study to determine if the long term impacts of timber management activities are causing a decrease in soil productivity from one rotation to another.

Water

- A study to determine if the HYSED Model water and sediment yield coefficients are valid for modeling on the Forest

- A study to further analyze the downstream costs of increased water yield.

Recreation - A study to determine the benefits and losses to dispersed recreationist that occur as a result of timber sales and associated road building.

END NEW TEXT

III. Management Direction

CHAPTER III. MANAGEMENT DIRECTION

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TABLES

CHAPTER III
MANAGEMENT DIRECTION

IMPLEMENTATION

This chapter of the Plan provides the long-range management direction for the Forest The direction responds to public issues, management concerns, and management opportunities The direction is within the capability, availability, and suitability objectives for the land and resources.

As soon as practicable after the Plan Amendment is approved, The Forest Supervisor will ensure that, subject to valid existing rights, all outstanding and future permits and other occupancy and use documents which affect National Forest System lands are consistent with the Plan. The management direction contained in the Plan is used in analyzing proposals by prospective Forest users. All permits, contracts, and other instruments for occupancy and use of National Forest System lands covered by this Plan must be consistent with the Management Requirements in both the Forest and Management Area Direction sections This is required by 16 USC 1604(i) and 36 CFR 219.10(e).

Subsequent administrative activities affecting National Forest System lands, including budget proposals, shall be based on the Plan. The Forest Supervisor may change proposed implementation schedules to reflect differences between proposed annual budgets and actual funds received. Schedule changes resulting from the budget appropriation process will be considered an amendment to the Plan The final annual budget allocation for the Forest will serve as amendment documentation Changes resulting from the budget appropriation process shall not be considered a significant amendment, and will not require the preparation of an environmental impact statement, Budget changes, which over time significantly alter the long-term relationships between levels of multiple-use goods and services projected in the Plan, will be evaluated in conjunction with the RPA Program update every five years and may result in a Plan amendment or revision.

Implementation of this management direction is the key to translating the goals, objectives, and management requirements stated in the Forest Plan into on-the-ground results. The Plan is implemented through the program development, budgeting, and annual work planning processes. These processes supplement the Plan by making annual adjustments and changes needed to reflect current priorities within the overall Plan management direction

The Plan guides development of multi-year implementation programs for each Ranger District. The Plan's management area direction, objectives, and management requirements are translated into these multi-year program budget proposals which specifically identify the activities and expenditures necessary to achieve the direction provided by the Plan. These implementation programs form the basis for the Forest's annual program budget.

Upon final budget appropriation approval for the Forest, the annual work program is finalized and implemented on the ground The annual work plan provides the detail to the program budget proposals necessary to guide land managers and their staffs in responding to Plan direction. The activity files in the data base and the Program Accounting and Management Attainment Reporting System provide information for monitoring the accomplishment of the annual Forest program.

Environmental assessments and environmental impact statements, when needed, will supplement the Forest Plan Environmental Impact Statement. Future environmental analyses will use Plan direction as an umbrella. Additional detail will be included in the environmental documents for future project level decisions.

The management direction of the chapter is composed of two major parts: (1) Forest Direction and (2) Management Area Direction.

Forest Direction consists of goals, objectives, and management requirements for the Forest. The goals and objectives provide broad overall direction regarding the type and amount of goods and services the Forest will provide. The management requirements contained in the Forest Direction set the minimum standards that must be maintained while achieving these goals and objectives. Management requirements establish the broad multiple-use management direction and generally apply to all areas of the Forest

Management Area Direction consists of individual management area prescriptions applicable to specific management areas. The management area prescriptions contain management requirements specifying which activities will be implemented to achieve goals and objectives Management requirements are specific to individual management area prescriptions within the Forest and are applied in addition to the Forest Direction Management Requirements. The management area map attached to this document indicates where the individual management area prescriptions will be applied

FOREST DIRECTION

Goals

The following goals are concise statements describing a desired condition to be achieved sometime in the future. They are expressed in broad general terms and are timeless They have no specific date by which they are to be completed. These goal statements are the principal basis for the objectives listed later in this chapter These goals respond to the Planning Questions and Problems discussed in Chapter II as well as appropriate laws, regulations, and policies.

Vegetation

Manage vegetation in a manner to provide and maintain a healthy and vigorous ecosystem resistant to insects, diseases, and other natural and human causes This will be done primarily through the commercial timber sale program for tree species located on lands suited for timber production On other sites and for non-tree species, this will be accomplished through a variety of methods including prescribed fire and livestock grazing These treatments should, where possible, provide a range of multiple-use outputs a few of which are fish and wildlife habitat, wood fiber, and economic benefits to the society

Recreation	Meet 50% of increased demand above existing capacity for developed recreation opportunities over the 50-year planning horizon on National Forest System land (the remaining 50% is discussed on page II-23)
	Meet demand for downhill skiing
	Meet demand for dispersed recreation outside wilderness
	Preserve and manage cultural resources and ensure that these resources remain available for research and education, as well as for public enjoyment.
Wilderness	Emphasize primitive wilderness opportunities
	Manage a majority of the wilderness acres at the full service management level
	Implement indirect methods for controlling wilderness use.
Fish and Wildlife	Increase National Forest System winter range carrying capacity for elk and deer
	Increase or improve wildlife habitat diversity
	Improve fisheries habitat
	Increase vertical and horizontal diversity
Old Growth	Define and inventory old growth for each of the Forest types on the Forest Develop and implement silvicultural practices to maintain and establish desired old growth values Implement National Policy on old growth
Range	Provide livestock forage commensurate with the needs of the resource and in harmony with direction in this Plan.
	Increase investments in structural and non-structural range improvements on range with high potential for improvement.
Timber	Provide commercial forest products to local dependent industries at a level commensurate with adhering to the Forest and Management Area Direction and in harmony with the other Plan goals
	Utilize the commercial timber sales program to help decrease the risk of insect and disease infestations both now and in the future
	Provide the opportunity to supply the local residents with fuelwood Meet the demand for personal-use fuelwood
Water	Manage surface uses to maintain water quality above Federal, State, and local standards
	Increase water supply, while reducing soil erosion and steam turbidity.
	Protect the water quality in streams, lakes, riparian areas, and other water bodies.
Minerals	Encourage environmentally sound energy and minerals development

	Coordinate mineral extraction with surface resource management
	Integrate mineral exploration and development within the National Forest System with the use and protection of other resource values.
	Emphasize oil, gas, geothermal, and mineral exploration and development outside wilderness areas.
	Mitigate unavoidable adverse environmental effects on National Forest System land.
Human and Community Development	Provide the opportunity for economic growth of industires and communities dependent upon Forest outputs, including tourism.
Protection	Provide a cost-efficient fire management program.
	Manage protection activities for air quality compatible with Federal and State laws.
	Prevent and control insect and disease infestations.
Lands	Increase opportunities for exchange and transfer of National Forest System land
	Acquire rights-of-way needed to support management of National Forest System resources.
	Post and mark the Forest boundary
Soils	Conserve soil resources.
	Maintain long-term land productivity.
Facilities	Improve cost effectiveness and efficiency of road management.
	Coordinate transportation facilities to meet the needs of the Forest, both roads and trails
	Provide a safe, efficient and environmentally sound transportation system.
	Implement an effective travel management program.
	Update existing facilities and structures to meet State and Federal standards.
	Replace facilities and structures that are deficient from a structural, functional, mechanical, electrical, or energy efficient standpoint.

FOREST MANAGEMENT OBJECTIVES

The planned outputs and activities displayed in Table III-1 are resource management objectives for the Forest. The table also shows the annual funding necessary to meet the objectives. These objectives may not always be accomplished in any given year or for the decade. If final budgets are significantly different from those contained in the table, final outputs will vary accordingly. In addition to budgets and personnel limitations, changes in data, assumptions, site specific variances from planned conditions, or other items used in the development of the Plan could affect accomplishment of outputs and activities. Should any of these factors vary significantly from the planned conditions, the necessary adjustments in outputs and effects will be evaluated to determine whether adjustment of the Plan is necessary.

MANAGEMENT REQUIREMENTS

The Forest Direction and the Management Area Direction contain management requirements which are made up of Management Activities, General Direction, and Standards and Guidelines; 1) Management Activities are work processes that are conducted to produce, enhance, or maintain Forest objectives, or to achieve administrative and environmental quality objectives; 2) General Direction specifies the actions, measures, or treatments (management practices) to be done when implementing the management activity, or the condition expected to exist after the general direction is implemented; and 3) Standards and Guidelines are quantifications of the acceptable limits within which the general direction is implemented.

The Forest Direction (pages III-9 through III-98) is applicable to all areas of the Forest unless specifically altered in the Management Area Direction.

The Management Area direction (pages III-101 through III-213) is applicable to specific land areas. Table III-2 (page III- 100) displays the management emphasis and acreage allocations for each management area. The accompanying Timber Management Amendment Map shows the management area boundaries and numbers corresponding to the management area prescriptions.

TABLE III-1 PROJECTED RESOURCE OUTPUTS (AVERAGE ANNUAL YIELD)

Activity	* Unit of Measure	1990	1991-2000	2001-2010	2011-2020
Recreation					
Developed Use Including VIS	MRVD	550	778	866	924
Management Level	%FSM/RSM	45/55	45/55	45/55	45/55
Increased Developed Recreation Capacity	MRVD	0	88	58	88
Downhill Skiing Use	MRVD	525	502	689	876
Dispersed Recreation Use					
Hunting	MRVD	309	340	362	362
Fishing	MRVD	245	304	324	344
Other	MRVD	1514	1794	2168	2543
Trail Construction and Reconstruction	Miles	30	50	50	50
Wilderness **					
Wilderness Mgmt.	M Acres	515 4	515 4	515.4	515.4
Management Level	%FSM/RSM	60/40	60/40	60/40	60/40
Wilderness Use	MWVD	194	223	268	322
Fish and Wildlife					
Aspen Treatment for Wildlife Habitat Management (not on lands suited for timber production)	Acres	500	500	500	500
T&E Habitat Mgmt	Acres	19,104	19,104	19,104	19,104
Winter Range Carrying Capacity, Elk and Deer	M Animals	87 3	87 6	87 2	86 8
Wildlife Structures	Number	10	10	10	10
Non-Structural Wildlife Habitat Improvement (Mainly Prescribed Burns)	Acres	2,000	2,000	2,000	2,000
Range					
Grazing Use (Livestock)	MAUM	340 0	300 0	250 0	275 0
Non-Structural Improvement	Acres	3,300	2,500	2,000	2,000

TABLE III-1: PROJECTED RESOURCE OUTPUTS (AVERAGE ANNUAL YIELD) (continued)

Activity	* Unit of Measure	1990	1991-2000	2001-2010	2011-2020
Timber					
Programmed Sales Offered by NIC ***					
Sawtimber	MMBF	20 5	21 0	21 0	29 6
Aspen POL	MMBF	18 3	15.0	15 0	15 0
Conifer POL	MMBF	0	2 4	4 4	4 4
Personal Use Fuelwood (Non-Chargeable)	MMBF	7 0	7 0	8 0	8 5
Reforestation	Acres	408	870	960	3,590
Timber Stand Improvement	Acres	300	200	200	200
Water					
Total Average Annual Yield	MMAF	2 87	2 88	2 88	2 89
Minerals					
Mineral Leases and Permits	# Operating Plans	136	136	156	182
Locatable Minerals	# Operating Plans	100	100	100	100
Acres Recommended Unavailable for Leasing on Unclassified Land ****	M Acres	185 5	185 5	185.5	185 5
Acres Recommended Available for Leasing with Surface Occupancy on Unclassified Land ****	M Acres	2,041 6	2,041 6	2,041 6	2,041 6
Acres Recommended Available for Leasing without Surface Occupancy on Unclassified Land ****	M Acres	210 7	210.7	210 7	210 7
Protection					
Fuelbreaks & Fuel Treatment	Acres	1,800	2,000	1,600	1,600
Insect and Disease Surveys	M Acres	4,000	4,000	4,000	4,000
Lands					
Land Exchange Offered	Acres	320	240	240	240
ROW Acquisitions	Cases	15	8	8	7
Occupancy Tresspasses	Cases	20	23	10	10
Landline Location	Miles	20	20	20	20
Special Uses Mgmt. & ROW Grants Trails & Roads	ROW's	30	30	20	20

TABLE III-1: PROJECTED RESOURCE OUTPUTS (AVERAGE ANNUAL YIELD) (continued)

Activity	* Unit of Measure	1990	1991-2000	2001-2010	2011-2020
Soils					
Soil and Water Resource Improvement	Acres	76	76	60	60
Annual Soils Surveys	Acres	170,000	10,000	10,000	10,000
Facilities					
Road Construction & Reconstruction					
Arterial & Collector	Miles	10 2	13 9	13 9	13 9
Local	Miles	20 0	47 0	49 0	25 0
Bridge & Major Culvert Const/Reconst	#	1 6	5	3	2
FA&O Const/Reconst of Buildings	#	3	1 5	1 5	1 5
Benefits *****					
Returns to Treasury	M$	836.1	845 3	846 0	846 9
Payment to Counties	M$	254 9	330 0	336.1	395 5
Costs *****					
Total Budget *****	M$	13,573 6	13,112 0	13,187 8	13,092.1
Capital Investment	M$	2,274 3	2,785 9	2,827 3	2,427 9

* Units of Measure.
MRVD = Thousand Recreation Visitor Days
M Acres = Thousand Acres
MAUM = Thousand Animal Unit Months
ROW's = # of Rights-of-Ways
MMAF = Million Acre Feet
%FSM/RSM = Percentage Full Service Mgmt/Reduced Service Mgmt
MWVD = Thousand Wilderness Visitor Days
MMBF = Million Board Feet
M$ = Thousand Dollars

** This total includes only Grand Mesa, Uncompahgre, and Gunnison National Forest's acres for the Big Blue, Collegiate Peaks, La Garita, Lizard Head, Maroon Bells-Snowmass, Mount Sneffels, Raggeds, and West Elk Wilderness areas and 13,599 acres of Cannibal Plateau Further Planning Area identified suitable for inclusion in the National Wilderness Preservation System

*** The planned ASQ for the decade(s) are made up of these three Non-Interchangeable Components, or "NIC's" The volumes for each of the components can not be "interchanged" for each other during the life of the Plan, shortfalls in one component can not be "made up" for with volume from another component

**** Leasing recommendations will be further analyzed in an Environmental Impact Statement with the criteria displayed in the Forest Direction

***** All Benefits, Costs, and Budget figures are shown in constant 1982 dollars

MANAGEMENT ACTIVITIES	GENERAL DIRECTION	STANDARDS & GUIDELINES
Diversity on National Forests and National Grasslands	01 Maintain structural diversity of vegetation on units of land 5,000 to 20,000 acres in size, or fourth-order watersheds, that are dominated by forested ecosystems (0061) (FDR) *** a. Old growth forests are valuable as diverse and productive ecosystems and will be protected and managed. Old growth forests are ecosystems distinguished by old trees and related structural attributes Old growth encompasses later stages of stand development that typically differs from earlier stages in a variety of characteristics which may include. size, accumulations of large, dead, woody material; number of canopy layers, species composition; and ecosystem function. Old growth is typically distinguished from younger stands by several of the following attributes. 1) large trees for species and site; 2) wide variation in tree sizes and and spacing; 3) accumulations of large, dead, standing and fallen trees; decadence in the form of broken or deformed tops or bole and root decay; multiple canopy layers; canopy gaps and understory patchiness. The GMUG Forest will develop old growth definitions for each forest type or type groups for use in determining the extent and distribution of old growth forests. The GMUG Forest will conduct old growth inventories and develop and implement silvicultural practices to maintain and establish desired old growth values. In the meantime, project level decisions that might affect old growth will give special consideration to the old growth resource. Old growth values shall be considered in designing the dispersion of old growth. In general, areas to be managed for old growth values are to be evenly distributed, whenever possible, with attention given to minimizing the fragmentation of old growth into small, isolated areas.	a. Maintain or establish a minimum of 20 percent of the forested area within a unit to provide vertical diversity. (6030) (FDR) b. Maintain or establish a minimum of 30 percent of the forested area within a unit to provide horizonal diversity. (6031) (FDR) *** c In forested areas of a unit, 5-12% or more will (where biologically feasible) be in an old growth forest classification and must occur in irregular shaped patches. Designated spruce-fir and mixed conifer old growth patches shall be no smaller than 30 acres in size and should average 100-200 acres in size whenever possible. In aspen and lodgepole pine forest types, designated old growth patches can be smaller than 30 acres and average less than 100-200 acres so that wildlife cover requirements can be met since clearcutting is generally performed in these forest types. All forest vegetation types will be represented in old growth delineations. For every 10,000 acres of forest land capable of providing forest stands meeting old growth criteria, 500-1,200 acres of old growth will be evenly distributed throughout the unit. In addition, other stands within the same unit will be designated so that these stands will be managed on extended rotations in order to develop their old growth structure and values so that these stands will serve as old growth replacement stands. 5% or more should be in the

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MANAGEMENT ACTIVITIES	GENERAL DIRECTION	STANDARDS & GUIDELINES
CONTINUATION OF Diversity on National Forests and National Grasslands		grass/forb stages (9000GM) d In forested units, create or modify created openings so they have a Patton edge-shape index of at least 1 4 and have at least a medium-edge contrast (6033) (FDR) *** e In the aspen type, 5% should be in the grass/forb and/or seed/sap stages. (9001GM)
	02 Retain existing medium- or high-contrast edges within forested diversity units (0060) (FDR) 03 If medium-contrasted edges are created in units dominated by grassland or shrubland, create openings with Patton edge-shape index of at least 1 4 Manage unmanipulated plant communities to reach late seral stages (0288) (FDR)	
	*** 04 In forested diversity units, maintain an average of 200-300 snags (in all stages of development) per 100 acres, well distributed over the diversity unit. (2000GM) (FDR)	*** a Snag dependent species must be maintained by providing habitat that will maintain minimum viable populations Provide as a minimum the following: -Ponderosa Pine, Douglas-fir and spruce-fir 90-225 snags per 100 acres 10" dbh or greater (where biologically feasible) -Aspen 120-300 snags per 100 acres 8" dbh or greater (where biologically feasible)

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MANAGEMENT ACTIVITIES	GENERAL DIRECTION	STANDARDS & GUIDELINES
CONTINUATION OF. Diversity on and National Grasslands		-Lodgepole Pine: 90-180 snags per 100 ac 8" dbh or greater (where biologically feasible) *From Wildlife Habitat in Managed Forests Agricultural Handbook No 553, 1979 *** b Maintain 10-20 tons of logs and other down woody material per acre for species dependent on this material for their habtat Retain an average length per acre of down-dead logs (where biologically feasible) of the following minimum diameters -Ponderosa Pine, Douglas-fir and spruce-fir 12 inch diameter 50 linear feet/acre -Aspen, Lodgepole pine 10 inch diamter 50 linear feet/acre
	*** 05 Manage aspen for retention wherever it occurs, unless justified by one of the following: a Conversion of determinate aspen to conifers, or shrub-or grass/forb seral stages for wildlife, esthetic, recreation, transportation, or watershed purposes. b Areas of aspen which are larger than are needed for wildlife or esthetic purposes (3000 GM) *** 06 If predominately aspen stands are managed for regeneration, treat contiguous areas no larger than 40 acres, unless larger areas are needed to protect aspen regeneration or prevent decadence. Treat entire clones. (3001 GM)	

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MANAGEMENT ACTIVITIES	GENERAL DIRECTION	STANDARDS & GUIDELINES
Cultural Resource Management	01 Protect, find an adaptive use for, or interpret all cultural resources on National Forest System (NFS) lands which are listed on the National Register of Historic Places, the National Register of Historic Landmarks, or have been determined to be eligible for the National Registers. (0039) (FDR) 02. Nominate or recommend cultural resource sites to the National Register of Historic Places by 1990 in the following priority: a Sites representing multiple themes, b Sites representing themes which are not currently on the National Register within the State, or c Sites representing themes which are currently represented by single sites. (0045) (FDR) 03 Protect and foster public use and enjoyment of cultural resources. a. Complete cultural resource surveys prior to any ground-disturbing project; b Avoid disturbance to known cultural resources until evaluated and determined not significant; c Collect and record information from sites where there is no other way to protect the properties; d Issue antiquities permits to qualifying academic institutions or other organizations for the study and research of sites (0131) (FDR) 04 Evaluate for eligibility to the National Register of Historic Places (NRHP) all cultural resources located on NFS lands Eligible cultural resources will be nominated to NRHP. (2032GM) (FDR) 05 Maintain NRHP eligible or listed historic resources to prevent deterioration or damage from weather or other natural, animal, or human intrusions. (2033GM) (FDR)	a. Follow direction in FSM 2360. (6310) (FDR)

MANAGEMENT ACTIVITIES	GENERAL DIRECTION	STANDARDS & GUIDELINES
Visual Resource Management	01 Apply the Visual Management System to all National Forest System (NFS) lands Travel routes, use areas and water bodies determined to be of primary importance are sensitivity level 1 and appropriate visual quality objectives are established according to the Visual Management System (0360) (FDR)	a. Follow direction provided in FSM 2311, 2380 and FSH 2309 16 through FSH 2309 25 (6205) (FDR) *** b The accepted range of adopted Visual Quality Objectives for individual land areas will correspond to the Adopted ROS classes as displayed in FSM 2311 11 Exhibit 1 (8020GM) (FDR) c The following table combines visual quality objectives/distance zones and visual absorption capability to identify what visual management guideline class (VMGC) is to be used The appropriate guidelines (a) through (r) follow the table

VISUAL MANAGEMENT GUIDELINE CLASSES TABLE

VQO'S/ Distance Zones	low	VAC moder-ate	high
R/Fg	1	1	2
R/Mg&Bg	3	3	3
PR/Fg	2	2	4
PR/Mg/Bg&3*	4	4	5
M/Fg	3	3	5
M/Mg/Bg&3*	6	6	7
MM/Bg&3*	7	7	7

*3 = Seldom Seen

VISUAL MANAGEMENT GUIDELINES

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MANAGEMENT ACTIVITIES	GENERAL DIRECTION	STANDARDS & GUIDELINES
CONTINUATION OF Visual Resource Management		(a) Manage to retain a minimum of 10% of the larger old growth Ponderosa pine Spruce-fir, and Douglas fir trees in VMGC 1 and 2. (b) Clearcutting units must not expose more than 15% of the seen area for a travel corridor in VMGC 1. (c) Clearcutting units must not expose more than 20% of the seen area for a travel corridor in VMGC 2 and 3 (d) Clearcutting units must not expose more than 25% of the seen area for a travel corridor in VMGC 4 and 5. (e) Develop corridor or viewshed reports for all travel corridors in VMGC 1, 2, and 3 before starting ground disturbing activities (f) Cutting units must not dominate natural patterns of form, line, color, and texture in VMGC 1, 2, 3, 4, and 5 (g) Cutting lines may dominate natural patterns but must repeat natural form, line, color, and texture in VMGC 6 and 7 (h) Manage to retain or improve diversity of understory size and species in VMGC 1 and 2 (i) All ground disturbances to be returned to natural appearances where feasible in all VMGC's (j) Stump height to be held to the minimum possible in visible areas in VMGC 1 and 2

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MANAGEMENT ACTIVITIES	GENERAL DIRECTION	STANDARDS & GUIDELINES
CONTINUATION OF Visual Resource Management		(k) Provide diversity of species and age classes in VMGC 2, 3, 4, 5, 6 and 7. (l) Landings are to be located outside seen areas or rehabilitated after timber sale in VMGC 1, 2, 3, 4 and 5. Snags for cavities are to be located to conform with natural vegetation patterns in VMGC 1,2,3 (m) Gravel, borrow and stockpile areas to be excluded from seen areas in VMGC 1 and 2. (n) Roads must not dominate natural patterns of form, line, color, and texture within clearcut areas one year after cutting in VMGC 1, 2, 3, 4, and 5 (o) All cut and fill slopes to be revegetated in VMGC 3, 4, 5, and 6 (p) Utility right-of-way clearing to conform with natural vegetative pattern in all VMGC's (q) Overhead utility lines to be screened where possible, where seen transmission towers will be of naturally harmonious colors in VMGC 1, 2, 3, 4, and 5 (r) All seen buildings will be of naturally harmonious colors in VMGC 1 and 2. (8021GM) (FDR)
	02 Rehabilitate all existing projects and areas which do not meet the adopted visual quality objective(s) (VQO) specified for each management area Set Priorities for rehabilitation, considering the following a. Relative importance of the area and the amount of deviation from the adopted VQO. Foreground areas have highest priority; b. Length of time it will take natural processes to reduce the visual impacts so that they meet the adopted VQO,	

MANAGEMENT ACTIVITIES	GENERAL DIRECTION	STANDARDS & GUIDELINES
CONTINUATION OF Visual Resource Management	c. Length of time it will take rehabilitation measures to meet the adopted VQO, and d. Benefits to other resource management objectives to accomplish rehabilitation (0363) (FDR)	
	03 Achieve enhancement of landscapes through addition, subtraction or alteration of elements of the landscape such as vegetation, rockform, water features or structures. Examples of these include a Addition of vegetation species to introduce unique form, color or texture to existing vegetation b Vegetation manipulation to open up vistas or screen out undesirable views (0364) (FDR)	
	04 Plan, design and locate vegetation manipulation in a scale which retains the color and texture of the characteristic landscape, borrowing directional emphasis of form and line from natural features (0365) (FDR)	a Meet the Visual Quality Objectives of retention and partial retention one full growing season after completion of a project Meet modification and maximum modification objectives three full growing seasons after completion of a project (6259) (FDR)
	05 Blend soil disturbance into natural topography to achieve a natural appearance, reduce erosion and rehabilitate ground cover. (0366) (FDR)	
	06 Revegetate disturbed soils. In large projects, this may have to be done in stages. (0456) (FDR)	a Revegetate disturbed soils by the following growing season (6276) (FDR)
	07 Choose facility and structure design, color of materials, location and orientation to meet the adopted visual quality objective(s) for the management area. (0367) (FDR)	

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MANAGEMENT ACTIVITIES	GENERAL DIRECTION	STANDARDS & GUIDELINES
Recreation Site Construction and Rehabilitation	01 Provide appropriate development facilities where the private sector is not meeting the demand. (0441) (FDR)	
	02 Maintain cost-effective developed recreation facilities which complement non-Forest Service developments (0442) (FDR)	
	03 Provide facilities which are accessible to handicapped persons. (0443) (FDR)	
	04 Facilities proposed for construction or reconstruction which lie within identified 100-year floodplains will be evaluated as to the specific flood hazards and values involved with the site Viable alternatives will be thoroughly evaluated. (0728) (FDR)	a. Follow procedures and guidelines in FSM 2527 04c (6632) (FDR)
	05 Past and probable flood heights in inventoried 100-year floodplains will be posted to provide visible warnings to the using public about possible periodic flooding (0730) (FDR)	a Follow procedures and guidelines in FSM 2527.6. (6634) (FDR)
Management of Developed Recreation Sites	01 Design, construct and operate developed sites which are adjacent to or provide an access point into a wilderness to complement wilderness management objectives. (0350) (FDR)	

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MANAGEMENT ACTIVITIES	GENERAL DIRECTION	STANDARDS & GUIDELINES
CONTINUATION OF Management of Developed Recreation Sites	02 Construct, reconstruct and maintain developed sites in accordance with existing Opportunity Spectrum (ROS) inventory for the management area (3032) (FDR)	a Standards and Guidelines ROS Class — Site Development Scale** p — Not to exceed 1 SPNM — Not to exceed 2 SPM — Not to exceed 2 RN — Class 3 or 4 R — Class 3 or 4 U — Class 5 * P = Primitive SPNM = Semi-primitive non-motorized SPM = Semi-primitive motorized RN = Roaded Natural R = Rural U = Urban ** FSM 2331 47 (6193) (FDR)
	03 Manage development scale 3 and 4 sites for full service when at least one of the following are met a A campground is designated as a fee site, b More than 20 percent of theoretical capacity is being utilized, c A group campground or picnic ground has a reservation system and/or user fee, or d The site is a swimming site, a boating site with a constructed ramp; or a staffed visitor information center. (0349) (FDR)	a FSM 2331 47 (6652) (FDR)
Dispersed Recreation Management	01 Provide a broad spectrum of dispersed recreation opportunities based on the existing Recreation Opportunity Spectrum (ROS) inventory for the management area (3033) (FDR)	a Follow direction provided in FSM 2311 and the ROS Users Guide. (9030)

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MANAGEMENT ACTIVITIES	GENERAL DIRECTION	STANDARDS & GUIDELINES
CONTINUATION OF Dispersed Recreation Management	02 Close or rehabilitate dispersed sites where unacceptable environmental damage is occurring (0040) (FDR)	a Close sites that cannot be maintained in Frissell Condition Class 1, 2, or 3, (Campsite Condition, Frissell, S S , Journal of Forestry August 1978). (6023) (FDR) b Rehabilitation sites that are in Frissell condition classes 4 or 5 (8022GM) (FDR)
	03 Manage dispersed recreation activities to not exceed the established ROS PAOT/acre capacity Manage use of trails in dispersed areas to not exceed the established PAOT/mile of trail guidelines (0352) (FDR)	a Standards and Guidelines Recreation use and capacity range during the snow-free period (PAOT/acre) Trail use and capacity range (PAOT/mile of trail)

Use Level	Capacity Range Very Low	Low	Moderate	High
ROS Class - Primitive				
On trails PAOT/Mile	0.5	1 0	2 01	3 0
Area wide PAOT/Acre	001	002	.007	025
ROS Class - Semi-Primitive Nonmotorized				
On Trails PAOT/Mile	2 0	3 0	9.0	11 0
Area-wide PAOT/Acre	004	.008	05	08

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CONTINUATION OF: Dispersed Recreation Management		ROS Class - Semi-Primitive Motorized On Trails PAOT/Mile: 2.0 / 3 0 / 9.0 / 11 0 Area-wide PAOT/Acre: 004 / 008 / 05 / 08 ROS Class - Roaded Natural On Trails PAOT/Mile: - / - / - / - Area-wide PAOT/Acre: .04 / .08 / 1 2 / 2 5 ROS Class - Rural On Trails PAOT/Mile: - / - / - / - Area-wide PAOT/Acre: .5 / 8 / 5 0 / 7 5 Reduce the above use level coefficients as necessary to reflect usable acres, patterns of use, and general attractiveness of the specific management area type as described in the ROS Users Guide, Chapter 25. Reduce the above use levels where unacceptable changes to the biophysical resources will occur * VERY LOW applies to alpine. LOW applies to rock, mtn grass, and clearcuts 1-20 years old

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CONTINUATION OF· *Dispersed* Recreation Management		MODERATE applies to LP size class 9, Mtn. grass PP size class 9, 8 and 7, DF size class 9, 8 and 7, Aspen size class 9, SF size class 7, shelterwood cuts 1-20 years old, selection cuts 1-20 years old and clearcuts 80-120 years old. HIGH applies to SF size class 9 and 8, LP size class 8 and 7, Aspen size class 8 and 7 and clearcuts 20-80 years old (6195) (FDR)
	04 Prohibit camping within a minimum of 100 feet from lakes and streams unless exceptions are justified by terrain or specific design which protects the riparian and aquatic ecosystems (0353) (FDR)	
Recreation Management (Private and Other Public Sector)	01 Ensure that permitted private and public sector sites on Forest Service lands which are adjacent to, or provide an access point into, a wilderness complement wilderness management objectives. (0457) (FDR)	
Wilderness Area Management	01 Do not provide interpretive facilities at cultural resource sites, nor restore or enhance cultural resources for recreation purposes. (0172) (FDR)	
	02 Permit only those uses authorized by Wilderness legislation, which cannot be reasonably met on non-Wilderness lands (0211) (FDR)	
	03 Provide opportunities for human isolation, solitude, self-reliance and challenge while traveling cross-country and on system trails. (0191) (FDR)	

MANAGEMENT ACTIVITIES	GENERAL DIRECTION	STANDARDS & GUIDELINES
CONTINUATION OF Wilderness Area Management	04 Utilize a permit system to manage use levels and patterns during the summer use period based upon the following criteria· a When acceptable use levels, as specified in the individual prescriptions, are exceeded during 20 percent of the summer use season, or b. When acceptable capacities, as specified in the individual prescriptions, in primitive or pristine management areas are exceeded on 10 percent or more of the days during the summer use season c Apply a permit system to an entire wilderness, not just impacted portions of a wilderness (0192) (FDR) 05 Do not impose party-size limits during traditionally light-use seasons or during fall hunting seasons unless necessary to prevent unacceptable levels of change to the biological and physical resources (0193) (FDR) 06 Maximum party-size limit for the summer use period is 25 people and/or recreational stock. Party size limits less than 25 people and/or recreational stock will be established where biological and physical resource capability cannot support that level of use Party sizes established for protection of biophysical resources will set limits for both people and recreational stock. Parties larger than established limits may be allowed under permit on a case-by-case basis when compatible with other wilderness management objectives (0194) (FDR) *** 07 Do not issue permits for or encourage competive contest events, group demonstrations, ceremonies, and other similar events (3040 GM) (FDR) 08 Prohibit dogs, or require them to be physically controlled on a leash Exceptions will be made for permittee's working dogs, and for hunting dogs while hunting during legal seasons (0202) (FDR)	

MANAGEMENT ACTIVITIES	GENERAL DIRECTION	STANDARDS & GUIDELINES
CONTINUATION OF. Wilderness Area Management	09 Prohibit recreational stock along lake shores and streambanks except for watering and through-travel. (0204) (FDR)	
	10 Require users camping overnight with recreational stock to carry cubed, pelleted, or rolled feed and/or certified weed-free hay where grazing is prohibited. (0176) (FDR)	
	11 Control overnight grazing of recreational stock in alpine and Krummholz ecosystems according to use standards in Management Activity *D02, Forest Direction.* (0206) (FDR)	a Base range condition on the standards in Range Analysis Handbook (FSH 2209.21). (6156) (FDR) b. Allowable soil disturbance criteria 20% maximum disturbance on ranges with good-excellent soil stability condition on 0-15% slopes. 15% maximum disturbance on ranges with fair soil stability conditions on slopes less than 15% and good or better soil stability conditions on slopes of 16-25%. 10% maximum disturbance on ranges with fair soil stability conditions on slopes 16-25%, and good soil stability conditions on slopes of 26-45% (6280) (FDR)
	12 Prohibit new range improvement structure other than corrals, fences or water developments essential to sustain current permitted numbers. (0221) (FDR)	
	13 Implement revegetation only for rehabilitation of areas in less than "fair" range condition based upon their natural potential Use only native species for revegetation. Implement only where natural vegetation possibilities are poor and only where degradation was due to human activities (0177) (FDR)	a Base range condition on the standards in Range Analysis Handbook (FSH 2209 21) (6156) (FDR)

MANAGEMENT ACTIVITIES	GENERAL DIRECTION	STANDARDS & GUIDELINES
CONTINUATION OF: Wilderness Area Management	14 Permit fish and wildlife research and management utilizing guidelines adopted by the International Association of Fish and Wildlife Agencies (FSH 2323 3). (0179) (FDR)	
	15 See Mining Law Compliance and Administration and Minerals Management Activities in Forest Direction for minerals direction (0476) (FDR)	
	16 Close or rehabilitate dispersed sites where unacceptable environmental damage is occurring. (0040) (FDR)	a Close sites that cannot be maintained in Frissel Condition Class 1, 2, or 3 (Campsite Condition, Frissell, S.S , Journal of Forestry August 1978) (6023) (FDR) b Rehabilitate sites that are in Frissell condition classes 4 or 5 (8022) (FDR)
	*** 17 Take appropriate suppression action on man-caused wildfires (3041 GM)	
	18 Maintain fire-dependent ecosystems using prescribed fires ignited naturally Reclaim areas disturbed as part of fire control activities to meet the visual quality objective of retention (0187) (FDR)	a Allow natural occurring fires to burn under approved wilderness fire area management plan. (8040GM) (FDR)
	19 Protect air quality related values from adverse effects from air pollution. (0188) (FDR)	a See criteria and standards in FSM 2120 (6286) (FDR)
	20 Control natural insect or disease outbreaks in wilderness only when justified by predicted loss of resource value outside of wilderness Conduct analysis in accordance with FSM 3440 (0190) (FDR)	
	21 Control problem animals on a case-by-case basis in cooperation with other agencies (FSM 2610) using methods directed at the offending animal but which present the least risk to other wildlife, and/or visitors. (0180) (FDR)	

MANAGEMENT ACTIVITIES	GENERAL DIRECTION	STANDARDS & GUIDELINES
Aquatic and Terrestrial Habitat Management	01 Manage for habitat needs of indicator species (0408) (FDR)	a Deer and Elk. Provide hiding cover within 1000 feet of any known calving areas. Refer to Forest Direction Management Activity "Habitat Improvement and Maintenance", General Direction 01, Standard and Guideline b for further clarification of hiding cover. (9083GM) (FDR) b Pine Marten (old growth spruce-fir) Opening created should be less than 300 feet in width. Provide diversity of forest communities. (8062GM) (FDR) c Red Crossbill (mature spruce-fir) Provide at least 20% of the area in trees bearing cones (8063GM) (FDR) d. Hairy Woodpecker (mature Lodge pole pine) Provide 3-5 snags/acre and meet the adopted VQO for the area. Protect those snags with cavities when they are located within 100 yards of 4-wheel drive access Leave live broken trees in preference to others in snag selection (8064GM) (FDR) e Goshawk (mature aspen) Provide 20% of pole or mature tree stands adjacent to nesting sites with at least 150 square feet of basal area Provide at least one class 1 log adjacent to nesting sites (8065GM) (FDR)

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MANAGEMENT ACTIVITIES	GENERAL DIRECTION	STANDARDS & GUIDELINES
CONTINUATION OF Aquatic and Terrestrial Habitat Management		f. Lewis Woodpecker (mature mountain shrub) Provide 3-5 snags/acre of size class 8 and 9 for cavities, while meeting adopted VWO for the area Protect snags with cavities within 100 yards of 4-wheel drive roads (8066GM) (FDR) g Abert Squirrel: (mature ponderosa pine) Leave at least two 12-20" DBH trees per 5 acres for nesting and feeding -Provide a group of smaller trees directly adjacent to nesting and feeding trees for hiding cover -Leave tree size gambel oak in association with Ponderosa Pine. (9050GM) h. Sage Grouse (late succession sagebrush) -See FSM 2631 management guides (9051GM) i Pinyon Jay. (mature pinyon pine Juniper) -Leave 3-4 seed bearing trees/acre for feeding and nesting. (8069GM) (FDR) j Bighorn Sheep -Use vegetation treatment to restore historic migration patterns and dispersed foraging areas on summer and winter ranges -Restrict activities within one mile of known bighorn sheep lambing grounds from May 1 through June 20 if they would cause unacceptable stress to lambing ewes (9052GM)

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MANAGEMENT ACTIVITIES	GENERAL DIRECTION	STANDARDS & GUIDELINES
CONTINUATION OF. Aquatic and Terrestrial Habitat Management		k Deer, Elk, Black Bear, Goshawk In areas of historic shortage of dry season water, where there is less than one source per section, create one source per section. (8071GM) (FDR)
	02 Maintain habitat for viable population of all existing vertebrate wildlife species (0289) (FDR)	a Maintain habitat capability at a level at least 40 percent of potential capability (6289) (FDR)
		b No activities shall be allowed within one quarter mile of an active Ferruginous hawk, Sawinson's hawk, goshawk, osprey or prairie falcon nest from March 1 to July 31 if they would cause nesting failure or abandonment (9053GM)
	*** 03 Inventory aquatic habitat associated with perennial streams on the Forest Maintain this aquatic habitat in at least its current condition with stable or improving trends Improve aquatic systems to an over-all upward trend (3060 GM)	*** a. Initiate inventories on perennial streams to determine current conditions and, where warranted, recommend actions to maintain, improve or enhance these conditions through changes in management activities. (9054 GM)
		*** b. Collect baseline information on perennial streams using methodologies outlined in FSH 2609 23 "Fisheries Habitat Evaluation Handbook" to begin building a data base for aquatic and riparian habitat (9055 GM)

MANAGEMENT ACTIVITIES	GENERAL DIRECTION	STANDARDS & GUIDELINES
CONTINUATION OF- Aquatic and Terrestrial Habitat Management		*** c Update data base to insure that inventories are reflective of existing conditions (9056 GM) *** d. Obtain biomass estimates of fish pounds/acre and compare with HQI estimates (9057 GM) *** e Initiate *macroinvertebrate sampling* Forest-wide to be used as indicator species for monitoring habitat quality Set up stations on 5-10 streams/district *per year, based on funding constraints* (9058 GM) *** *f. Maintain fisheries habitat at a level* which reflects an improving trend. (9059 GM)
	*** 04 Manage habitat for needs of macroinvertebrate and fish indicator species on all perennial streams which provide *potential fisheries* Manage waters capable of supporting self-sustaining trout populations to provide for these populations (3061 GM)	*** a. Work toward obtaining optimal values for. Pool Riffle Ratios, pool measure and pool structure, % bank cover, % bank stability, % bank vegetation stability, and % stream bottom composition Values should approach current habitat condition indices and priorities for more intensive management should be based on these values (9060 GM)

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CONTINUATION OF Aquatic and Terrestrial Habitat Management		*** b. Analyze aquatic habitat quality and potential based on results of macro-invertebrate sampling as it relates to their tolerance levels to environmental stress or perturbations. (9061 GM) c Manage stream habitat to improve habitat conditions. If alternatives to management activities which cause unfavorable conditions cannot be developed, then mitigation measures will be included in project proposals (9084GM) (FDR)
	*** 05 Prioritize streams for intensive management based on their current condition and ability to support self-sustaining trout populations and manage these streams to provide optimal habitat for trout populations (3062 GM)	*** a. Conduct biomass estimates in cooperation with Colorado Division of Wildlife (CDOW) to determine carrying capactiy of streams where populations are not supplemented by CDOW stocking programs (9062 GM) *** b If alternatives to management activities which cause unfavorable conditions cannot be developed, then mitigation measures will be included in project proposals (9063 GM)
Habitat Improvement and Maintenance	01 Use both commercial and noncommercial silvicultural practice to accomplish wildlife habitat objectives. (0051) (FDR)	*** a In forested areas, maintain deer or elk cover on 60 percent or more of the perimeter of all natural and created openings, and along at least 60 percent of each arterial and collector road that has high levels of human use during the time deer and elk would be expected to

MANAGEMENT ACTIVITIES	GENERAL DIRECTION	STANDARDS & GUIDELINES
CONTINUATION OF: Habitat Improvement and Maintenance		inhabit an area Cover should be located and measured perpendicular to the road. Gaps between cover along the roads should not exceed one quarter mile. Roads with restricted use could provide for less cover. Maintain cover along 40 percent of each stream and river. (9064 GM) *** b. In diversity units dominated by forested ecosystems, the objective is to provide for a minimum habitat effectiveness of 40 percent through time. Habitat effectiveness will be determined by evaluating hiding and thermal cover, forage, roads, and human activity on the roads Cover should be well distributed over the unit. Hiding and thermal cover may be the same in many cases Minimum size cover areas for mule deer are 2-5 acres and for elk 30-60 acres If an area being evaluated does not meet the accepted definition of fully satisfactory hiding or thermal cover, it still has value as cover but more area may be needed to compensate for the lower quality cover or it may be necessary to control human activity It must be recognized that as plant succession changes, the amount of an area that is either cover or openings is changing The effectiveness of an area for big game should be evaluated through time In a Diversity Unit or some

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MANAGEMENT ACTIVITIES	GENERAL DIRECTION	STANDARDS & GUIDELINES
CONTINUATION OF: Habitat Improvement and Maintenance		sub-part, the amount of area that is actually cover will vary. The intent is to make or keep the area in a condition where deer and elk can effectively use the area by managing the vegetation and human activity. (9065 GM) c. In diversity units dominated by non-forested ecosystems, maintain deer and elk hiding cover as follows: % of Unit Forested — % of Forested Area in Cover 35-50 — at least 50% 20-34 — at least 60% less than 20 — at least 75% These levels may be exceeded temporarily during periods when stands are being regenerated to meet the cover standard, or to correct tree disease problems, in aspen stands, or where windthrown or wildfire occurred. Maintain hiding cover along at least 75 percent of the edge of arterial and collector roads, and at least 60 percent along streams and rivers, where trees occur (6660) (FDR) d. Alter age classes of browse stands in a diversity unit, no more than 25 percent within a ten-year period. (6146) (FDR) e. In addition to providing good habitat, all improvements must also meet the adopted VQO. (9066)
	02 Improve habitat capability through direct treatments of vegetation, soil, and waters. (0337) (FDR)	

MANAGEMENT ACTIVITIES	GENERAL DIRECTION	STANDARDS & GUIDELINES
CONTINUATION OF: Habitat Improvement and Maintenance	03 Maintain edge contrast of at least medium or high between tree stands created by even-aged management. (0448) (FDR)	a. Contrast by Age Class is:

Contrast**

Age Class*	OG	M	P	SSS	GF	Shr	Gra
OG	-	L	M	H	H	M	H
M	L	-	M	M	H	M	H
P	M	M	-	M	H	M	H
SSS	H	M	M	-	L	L	L
GF	H	H	H	L	-	M	L
Shr	M	M	M	L	M	-	M
Gra	H	H	H	L	L	M	-

* OG = Old Growth
M = Mature
P = Poles

SSS = Shrub-seedling-sapling
GF = Grass-forb
Shr = Shrublandb
Gra = Grassland

** H = High contrast
M = Medium contrast
L = Low contrast
(6265) (FDR)

*** 04 Initiate plans for aquatic habitat improvements based on inventory analyses, where needed. (3063 GM)	*** a Improve and/or maintain aquatic habitat on perennial streams and for aquatic habitat diversity and water quality to optimize community *structure and favor clean water species* (9067 GM)

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MANAGEMENT ACTIVITIES	GENERAL DIRECTION	STANDARDS & GUIDELINES
CONTINUATION OF- Habitat Improvement and Maintenance		*** b Improve aquatic habitat on streams where inventories idicate a need based on current methodologies such as Pfankuch's and Cowfish. (9068 GM) *** c. Prepare activity plans for streams based on priorities and considering the basin-wide approach to management (9069 GM)
Cooperation with other Agencies	*** 01 Conduct habitat improvement projects jointly or cooperatively funded with the state of Colorado or other partnerships (3064 GM) *** 02 Manage animal damage in cooperation with the State Wildlife Agencies, Fish and Wildlife Service, USDA-APHIS-Animal Damage Control, other appropriate agencies, and cooperators to prevent or reduce damage to other resources and direct control toward removing only the offending animal Preventative damage hunts will only be allowed on a case by case basis. (3065 GM) 03 Allow denning or aerial hunting for coyotes only and solely for the purpose of animal damage control and under the following conditions. a. Methods are specified in the Forest Animal Control Plan, b. Denning and aerial hunting is done by an Authorized individual; and c Denning will be allowed on a case by case basis only when other measures of control have not been successful. d. The permit is issued by the State for aerial hunting. (0098) (FDR)	a. Insure that improvement projects submitted in the Forest Action Plans have had the necessary pre-project evaluations conducted on them which includes some level of monitoring. (9070)

MANAGEMENT ACTIVITIES	GENERAL DIRECTION	STANDARDS & GUIDELINES
CONTINUATION OF· Cooperation with other Agencies	*** 04 Plan lake and stream habitat improvement projects, with the assistance of state agencies and partners, where aquatic habitat is below productive potential. (3067 GM)	*** a Assess improvements and determine changes in fish and macroinvertebrate populations by conducting pre- and post-evaluations on aquatic or riparian improvement sites Results will be used to assess long-term benefits to these systems. (9071 GM) *** b Coordinate with state agencies to determine changes in fish biomass (9072 GM)
	*** 05 Cooperate with state agencies to meet minimum flow requirements to support resident fish populations (3068 GM)	*** a. Review database to determine where additional flows are needed, or where existing flows need to be maintained, and work with state agencies to protect or enhance these flows (9073 GM) *** b. Provide conservation pools in reservoir construction and reconstruction projects (9074 GM)
Wildlife and Fisheries Threatened, Endangered and Sensitive Species	*** 01 Manage for and provide habitat for threatened, endangered and sensitive species as specified in the Regional Forester's 1920 (2670) letter dated June 25, 1982 (3069 GM)	a No activities shall be allowed within one mile of an active bald eagle or peregrine falcon nest from February 1 to July 31 if they would cause nesting failure or abandonment (9075GM)

MANAGEMENT ACTIVITIES	GENERAL DIRECTION	STANDARDS & GUIDELINES
CONTINUATION OF. Fisheries Threatened, *Endangered and* Sensitive Species		b Manage to provide habitat for the sensitive species, Uncompahgre Fritillary butterfly (Boloria acronema), Braya humilus spp and Ventosa (no common name) where they occur. (2070 GM) *** c Delineate and manage habitat for Colorado River cutthroat trout (Oncorhynchus clarki pleuriticus) as part of the State's recovery plan for de-listing the species (9076 GM)
Range Resource Management	01 Remove livestock for the remainder of the grazing season from allotments managed under a continuous grazing system when further utilization on key areas will exceed allowable use criteria for the season (0057) (FDR)	
	02 Manage livestock and wild herbivores forage use by implementing allowable use guides on key areas (0058) (FDR)	a Livestock and wild herbivores allowable forage use by grazing system and range type are 1 Rest Rotation System. a. Use by range type: -Mainly seed Reproduction: (Bunchgrass, plains grassland, foothills shrub and alpine range types):

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MANAGEMENT ACTIVITIES	GENERAL DIRECTION	STANDARDS & GUIDELINES
CONTINUATION OF Range Resource Management		50-60 percent on heavy use pastures Up to 45 percent on light use pastures. -mainly vegetation reproduction (meadow, sandhill prairie, bluegrass bottoms, and aspen range types)· Bluegrass maximum up to 80 percent; others, 55-65 percent on heavy use pastures, 40-50 percent on light use pastures. -Wild herbivores use during spring in rest-pastures will not exceed 25%. b Allowable soil disturbance or recovery criteria: Soil and vegetation condition must be restored to at least the pre-treatment condition by the return to the same point in the grazing cycle. 2 Deferred Rotation System· a Use by range type: -Mainly seed Reproduction· 40-50 percent on all pastures. -Mainly vegetation reproduction: 45-55 percent on all pastures

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MANAGEMENT ACTIVITIES	GENERAL DIRECTION	STANDARDS & GUIDELINES
CONTINUATION OF: Range Resource Management		b Allowable soil disturbance or recovery criteria: Soil and vegetation conditions must be restored to at least the pre-treatment condition by the return to the same point in the grazing cycle. 3. Rotation System a Use by range type: -Mainly seed Reproduction: Max. of 50 percent on last used pastures. Max. of 40 percent on first used pasture. -Mainly vegetation reproduction: Max. of 55 percent on last used pasture. Max. of 45 percent on first used pasture.

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CONTINUATION OF:
Range Resource Management

b. Allowable soil disturbance or recovery criteria.

Same as deferred rotation system above

4 Continuous System (Grazing same time and place every year).

-Mainly seed Reproduction

Use by Condition Class on Key Area

Season	Good and Excellent	Fair	Poor	Very Poor
Full Grazing Season or Spring	31-40%	21-30%	11-20%	0-10%
Summer	36-45%	26-35%	11-25%	0-10%
Fall and/or Winter	46-55%	31-45%	16-30%	0-15%

Mainly vegetation reproduction

Same as primary seed reproduction except increase utilization by 10% on bluegrass

Allowable soil disturbance.

20% maximum disturbance on ranges with good-excellent soil stability condition on 0-15% slopes.

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CONTINUATION OF:
Range Resource Management

15% maximum disturbance on ranges with fair soil stability condition on less than 15% slopes, and on good or better soil stability condition on 16-25% slopes.

10 % maximum disturbance on ranges with fair soil stability condition on less than 15% slopes, and on good or better soil stability condition on 26-45% slopes.

5. Alternate Years System:

a. Use by range type on key areas:

-Mainly seed Reproduction:

Condition Class on Key Area	Use
Good-Excellent	51-60%
Fair	36-50%
Poor	21-35%
Very Poor	0-20%

-Mainly Vegetation Reproduction:

Condition Class on Key Area	Use
Good-Excellent	56-65%
Fair	41-55%
Poor	31-40%
Very Poor	0-30%

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MANAGEMENT ACTIVITIES	GENERAL DIRECTION	STANDARDS & GUIDELINES
CONTINUATION OF. Range Resource Management		Bluegrass 80% on good or better condition and same proper use percent for fair and lower as above. Soil disturbance criteria is same as for continuous grazing.
		(6041) (FDR)
	03 Achieve or maintain satisfactory range conditions on all rangelands. (3080GM)	*** a Programs and projects to accomplish this should be economically efficient and based on sound ecological principles. (9090 GM)
	04 Treat noxious farm weeds in the following priority: a. Leafy spurge, Russian and spotted knapweed, and Canada and musk thistle; b Invasion of new plant species classified as noxious farm weeds, c Infestation in new areas; d Expansion of existing infestations of Canada and musk thistle, and other noxious farm weeds; and e Reduce acreage of current infestation (2085GM) (FDR)	
Range Improvements and Maintenance	01 Structural range improvement should be designed to benefit wildlife and livestock (0416) (FDR)	a Structural improvements and maintenance will be in accordance with FSM 2209 22-R2. (6277) (FDR) b Structural improvements will not adversely affect big game movements (FSH 2209 22). (6247) (FDR) c. Structural in improvements will meet the adopted VQO (9091)

MANAGEMENT ACTIVITIES	GENERAL DIRECTION	STANDARDS & GUIDELINES
Silvicultural Prescriptions	*** 01 Apply a variety of silvicultural systems and harvest methods which best meet resource management objectives. Commercial timber sales will be scheduled only on lands suitable for timber production and can occur in all management areas except 8A, 8B, 8C, 10A and 10C. (2108 GM)	*** a. The appropriate harvest methods by forest cover type are:

Forest Cover Type	Appropriate Harvest Methods* : Even-aged	: Uneven-aged
Ponderosa Pine	SW	GS & ST
Aspen	CC	--
Lodgepole Pine	SW & CC	GS
Engelmann spruce-Subalpine-fir	SW & CC	GS & ST
Douglas -fir		
Mistletoe infected Stands - all species	CC	--

* The following abbreviations are used for harvest methods:

SW = Shelterwood
CC = Clearcut
GS = Group Selection
ST = Single tree selection
(9100GM)

*** b. The utilization standards for live and dead material as used in the analysis were as follows. Consult current Forest Service manual and/or hand books for utilization standards to be used for timber sales:

Species	Min. DBH	Min. Top Dia.	Length (feet)	%Net of Gross

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MANAGEMENT ACTIVITIES	GENERAL DIRECTION	STANDARDS & GUIDELINES

CONTINUATION OF
Silvicultural
Prescriptions

Live Trees - All Planning Periods

Sawtimber				
Conifers	8 0	7.0	8	33-1/3
Aspen	8 0	7.0	8	50
Products other than Logs	5 0	4 0	8-1/3	--

Dead Trees - All Periods

Sawtimber				
Lodgepole Pine	8.0	7.0	16	33 1/3
Other Conifers**	12.0	10.0	16	33 1/3
Products other than Logs	5 0	4 0	variable	

* Considering all defects except weather checking. Prominent checks or splits are considered defects

** Removal of dead subalpine fir will not be required on sawtimber sales (9101GM)

c To facilitate the control of soil erosion within acceptable tolerance.

1 Permit conventional logging equipment on slopes of less than 20 percent where soil surveys or site-specific soil data are unavailable

2 Allow conventional logging equipment on slopes up to 40 percent where soil surveys or site-specific soil data are available to design erosion mitigation needs

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MANAGEMENT ACTIVITIES	GENERAL DIRECTION	STANDARDS & GUIDELINES
CONTINUATION OF Silvicultural Prescriptions		3. Utilize high flotation equipment on slopes up to 60 percent or cable and aerial systems on any slope. (6314) (FDR)

***
02 Treat as large a percentage of a fourth order watershed in one entry as possible while still complying with the other Standards and Guidelines in order to maximize financial and economic efficiency while minimizing long-term impacts by reducing the total number of entries in a given watershed over a rotation.
(3100 GM)

***
03 Clearcut and /or shelterwood in Englemann spruce/subalpine fir/Douglas-fir according to the following guidelines

a Utilize the shelterwood method on south and west aspects to provide seed and shade protection if windfall risk is below average It can also be used on other aspects when cold, droughty sites are present

b. Utilize the clearcut method on north and east aspects, or on other aspects if moist site conditions are present and where windfall risk is above average.

c Openings created by clearcutting should be of a size and shape that provide for the needs of regeneration, are economically efficient and meet other biological management objectives found in the Plan
(3101 GM)

MANAGEMENT ACTIVITIES	GENERAL DIRECTION	STANDARDS & GUIDELINES
CONTINUATION OF Silvicultural Prescriptions	*** 04 Assure that all even-aged stands scheduled to be harvested during the planning period will generally have reached the culmination of mean annual increment of growth. Rotation age may be longer or shorter depending on site quality, previous management, insects and disease and management objectives for resources other than timber production. Variations from the Rotation Age table will be documented in the site specific silvicultural prescription. (3102 GM) 05 The maximum size of opening created by the application of even-aged silviculture will be 40 acres regardless of forest cover type. Exceptions are: a. Proposals for larger openings are subject to a 60-day public review and are approved by the Regional Forester; b Larger openings are the result of natural catastrophic conditions of fire, insect or disease attack; windstorm, or c The area does not meet the definition of created openings (0017) (FDR)	

MANAGEMENT ACTIVITIES	GENERAL DIRECTION	STANDARDS & GUIDELINES
CONTINUATION OF. Silvicultural Prescriptions	*** 06 For management purposes, a cut-over area is considered an opening until such time as: - Increase water yield drops below 50 percent of the potential increase, - Forage and/or browse production drops below 40 percent of potential production, - Deer and elk hiding cover is re-established to the point where tree cover is established so that views do not exceed 200-300' into the unit If the unit is adjacent to open roads, view distances may need to be decreased. - Minimum stocking standards by forest cover type and site productivity are met, and - The area appears as a young forest rather than a restocked opening, and takes on the appearance of the adjoining characteristic landscape (3103 GM)	*** a In order to meet the stated Visual Quality objectives of an area, the regenerated stands shall meet or exceed all of the following characteristics before a cut-over area is no longer considered an opening:

Forest Cover Type	Minimum Stocking Level (Trees/ acre)	Tree Height 1/ (% of the adjacent mature stand height or feet) Visual Quality Objective R/PR	M/MM
Ponderosa Pine	190	25%	6 feet
Lodgepole Pine	150	25%	6 feet
Engelmann Spruce-Subalpine fir Douglas-fir	150	25%	6 feet
Aspen	300	25%	6 feet

Forest Cover Type	Crown Closure (Percent)	Distribution 2/
Ponderosa Pine	30	70%
Lodgepole Pine	30	75%
Engelmann Spruce-Subalpine fir Douglas-fir	30	75%
Aspen	30	75%

1/ Applies to trees specified as minimum stocking level
2/ Percent of plots or transects that are stocked.
(9104 GM)

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CONTINUATION OF: Silvicultural Prescriptions

***
07 Acceptable management activities :

Management Activity*	Engelmann Spruce-Subalpine Fir Douglas-fir	Ponderosa Pine	Lodge-Pole Pine	Aspen
Tree Improvement	X	X	X	N
Site Preparation	X	X	X	N
Reforestation				
Planting	N	N	N	O
Seeding	N	N	X	O
Natural	X	X	X	X
Regeneration Protection	X	X	X	N
Stocking Control (thinning):				
Precommercial	X	X	X	O
Commercial	N	N	X	O
Salvage of Dead Material	X	X	X	X
Cutting Methods.				
Clearcut	X	N	X	X
Shelterwood	X	X	N	O
Selection	X	X	N	O

*Various combinations of these activities provide the acceptable range of management intensity for timber production (36 CFR 219.14(b)).
X = Appropriate practice.
O = Not an appropriate practice.
N = Appropriate, but not a standard practice. May be acceptable where economically justified or necessary to meet management objectives.
(3104 GM)

MANAGEMENT ACTIVITIES	GENERAL DIRECTION	STANDARDS & GUIDELINES
CONTINUATION OF Silvicultural Prescriptions	*** 08 Provide for wildlife habitat improvement and enhancement of other renewable resources in Sale Area Improvement Plans (3105 GM) (FDR) 09 Make Christmas trees available in areas where other resource objectives can be accomplished through commercial or personal use Christmas tree sales. (0020) (FDR) *** 10 Utilize firewood material using both commercial and noncommercial methods. Public fuelwood areas (both free-use and charge) can be located on lands not suited for commercial timber production. (3106 GM) *** 11 Apply intermediate treatments to maintain growing stock level standards when it is economically efficient to do so. (3107 GM)	
Reforestation	01 Establish a satisfactory stand on cutover areas; emphasing natural regeneration within five years after final harvest except: a For permanent openings that serve specific management objectives; b When provided for otherwise in specific management prescriptions. (0013) (FDR)	

MANAGEMENT ACTIVITIES	GENERAL DIRECTION	STANDARDS & GUIDELINES

CONTINUATION OF:
Reforestation

***

a. Minimum Stocking Standards by Productivity and Forest Cover Type

Forest Cover Type	Site Prod. (Cu. Ft /acre/yr)	Planting 1/ Densities (Trees/A)
Spruce-fir	85+	360-680
	50-84	360-540
	20-49	300-360
Aspen	all	---
Lodgepole Pine	85+	360-680
	50-84	360-540
	20-49	300-360
Ponderosa Pine	85+	435-680
	50-84	435-550
	20-49	300-360

Forest Cover Type	Stocking rates for certification of "adequately stocked" per acre	
	Min. 2/	Desir 3/
Spruce-fir	200	530
	200	430
	150	360
Aspen	1200(Age 5)	1800
Lodgepole Pine	245	430
	200	430
	150	360
Ponderosa Pine	205	310
	205	255
	190	240

Forest Cover Type	Percent of Plots or Transects That are Stocked	
	Minimum	Desired

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MANAGEMENT ACTIVITIES	GENERAL DIRECTION	STANDARDS & GUIDELINES

CONTINUATION OF.
Reforestation

Spruce-fir	75	100
Aspen	75	100
Lodgepole Pine	75	100
Ponderosa Pine	70	100

Forest Cover Type	Seedling Height (Inches) Minimum	Desired
Spruce-fir	3"	18"
Aspen	12"	45"
Lodgepole Pine	3"	18"
Ponderosa Pine	3"	18"

1/ Lower densities are recommended to meet minimum stocking standards. Higher densities are recommended to meet desired stocking standards, with ample stock for selecting genetically superior trees.
2/ Minimum stocking standards are to be used where no precommercial cutting will be done, and only one harvest will be made to regenerate the stand

3/ Desired stocking standards are to be used where at least one precommercial cut will be done followed by two sawlog harvests before the final cut is done. (Aspen will have only one final cut)
(9105 GM)

02 Do not apply final shelterwood removal cut until the desired number (as specified in Minimum Stocking Standards) of well-established seedling/acre are expected to remain following overwood removal.
(0142) (FDR)

03 Use trees of the best genetic quality available which are adapted to the planting site when supplemental Planting (Reference FSM 2475)
(0141) (FDR)

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MANAGEMENT ACTIVITIES	GENERAL DIRECTION	STANDARDS & GUIDELINES
CONTINUATION OF: Reforestation	**** 04 For management purposes, a final shelterwood removal cut is considered an opening until such time as: - Increase water yield drops below 50 percent of the potential increase, - Forage and/or browse production drops below 40 percent of potential production, - Minimum stocking standards by forest cover type and site productivity are met, and - The area appears as a young forest rather than a restocked opening, and takes on the appearance of the adjoining characteristic landscape (3114 GM)	*** a. In order to meet the stated Visual Quality objectives of an area, the regenerated stands shall meet or exceed all of the following characteristics before a cut-over area is no longer considered an opening:

Forest Cover Type	Minimum Stocking Level (Trees/ acre)	Tree Height 1/ (% of the adjacent mature stand height or feet) Visual Quality Objective R/PR	M/MM
Ponderosa Pine	190	25%	6 feet
Lodgepole Pine	150	25%	6 feet
Engelmann Spruce-Subalpine fir Douglas-fir	150	25%	6 feet
Aspen	300	25%	6 feet

Forest Cover Type	Crown Closure (Percent)	Distribution 2/
Ponderosa Pine	30	70%
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Engelmann Spruce-Subalpine fir Douglas-fir	30	75%
Aspen	30	75%

1/ Applies to trees specified as minimum stocking level.
2/ Percent of plots or transects that are stocked
(9104 GM)

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MANAGEMENT ACTIVITIES	GENERAL DIRECTION	STANDARDS & GUIDELINES
Timber Stand Improvements	01 Utilize Christmas tree sales for stocking controls where the opportunity exists. (0015) (FDR)	
Riparian Area	01 Design and implement activities in management areas to protect and manage the riparian ecosystem (0401) (FDR)	a Maintain all riparian ecosystems in at least an upper mid-seral successional stage based upon the R2 Riparian Ecosystem Rating System (6147) (FDR)
	*** 02 Riparian areas benefit all resources and as such, the responsibilities for management and funding of them are shared by all resource disciplines. (3120 GM)	
	03 Manage riparian areas to reach the latest seral stage possible within the stated objectives (0402) (FDR)	
	04 Prescribe silvicultural and livestock grazing systems to achieve riparian area objectives (0403) (FDR)	
	05 Locate and construct all roads to maintain the basic natural condition and character of riparian areas (2120GM) (FDR)	
	06 Also see Management Prescription 9A for riparian area management. (0404) (FDR)	
	*** 07 Initiate and maintain a riparian inventory, capable of upward reporting which will determine the level of compliance in meeting the objectives of the Forest Land Use Plan (3121 GM)	

MANAGEMENT ACTIVITIES	GENERAL DIRECTION	STANDARDS & GUIDELINES
Water Uses Management	01 Determine and obtain rights to instream flow volumes to protect and maintain stream channel stability and capacity and to accomplish any proposed increase in use or resource activity (0009) (FDR) 02 Protest water right applications of others when such uses will lower streamflows below levels acceptable for National Forest uses and purposes. (0602) (FDR) 03 Special Use Permits, easements, rights-of-way, and similar authorizations for use of NFS lands shall contain conditions and stipulations to maintain instream or by-pass flows necessary to fulfill all National Forest uses and purposes. (0604) (FDR)	
Water Resource Improvement and Maintenance	01 Maintain instream flows and protect public property and resources (0010) (FDR) 02 Improve or maintain water quality to meet State water quality standards. However, where the natural background water pollutants cause degradation, it is not necessary to implement improvement actions. Short-term or temporary failure to meet some parameters of the State standard, such as increased sediment from road crossing construction or water resource development may be permitted in special cases. (0005) (FDR)	a Provide mitigation measures necessary to prevent increased sediment yields from exceeding "threshold limits" (as determined by "State of the Art" modeling (HYSED) or actual measurements) identified for each (fourth order) watershed (6320) (FDR)

		GUIDELINES
CONTINUATION OF: Water Resource Improvement and Maintenance	04 Rehabilitate disturbed areas that are contributing sediment directly to perennial streams as a result of management activities to maintain water quality and establish vegetation cover (0676) (FDR)	a Reduce to natural rate any erosion due to management activity in the season of disturbance and sediment yields within one year of the activity through necessary mitigation measures such as water-barring and revegetation
	*** 05 Prevent the accumulation of debris from management activity within the stream channel while protecting naturally accumulated large organic debris. Add or remove large debris only if supported by fluvial and fisheries analysis	
	06 Prevent soil surface compaction and disturbance in riparian ecosystems Allow use of heavy construction equipment for construction, residue removal, etc., during periods when the soil is least susceptible to compaction or rutting (0003) (FDR)	a Proposed land-use facilities (roads, campgrounds, buildings) should not be located within floodplain boundaries for the 100-year flood Protect present and future facilities that cannot be located out of the 100-year floodplain by structural mitigation deflection structures, riprap, etc). (6051) (FDR)
	07 Limit use of herbicides, insecticides, rodenticides, or other chemical agents as part of management activities to times and places where possible transport to or by surface water has a low probability of occurrence. Follow all label requirements concerning water quality protection (0678) (FDR)	
Minerals Management General	01 Administer areas with producing sites and known reserves with consideration of ongoing and potential mineral activities (0640) (FDR)	
	02 Avoid or minimize capital investments, such as developed recreation, in or adjacent to areas with known reserves and alienated mineral rights. (0642) (FDR)	

MANAGEMENT ACTIVITIES	GENERAL DIRECTION	STANDARDS & GUIDELINES
CONTINUATION OF. Minerals Management General	03 In areas of actively producing sites or areas containing known reserves, consider only surface resource programs compatible with minerals activities. (0644) (FDR) 04 In areas of high to moderate potential for valuable mineral deposits, perform site-specific mineral evaluations prior to making substantial capital investments, such as recreational developments. (0646) (FDR)	
Mining Law Compliance and Administration	01 Prevent or control adverse impacts on surface resources in accordance with 36 CFR 228. a. Unclassified lands Provide for reclamation of disturbed lands to achieve the planned uses specified in the Forest Plan, when those lands are no longer needed for mining operations b Designated Wilderness, Congressionally designated Wilderness Study Areas, and areas recommended for wilderness designation by RARE II on which Congressional action has not been completed: Provide for reasonable access of the type necessary to the purpose of proposed operations and for restoration of disturbed lands as near as practical to their natural condition when they are no longer needed for operations c Other classified lands not withdrawn from operations under the General Mining Laws: Such as lands may include Research Natural Areas, National Recreation Areas, "RARE II" Further Planning Areas, Special Interest Areas such as scenic and geologic, National Historic Sites, or some other type of specific classification. The status of classified lands with respect to withdrawal must be checked before an operating plan can be approved Provide for reasonable protection of the purposes for which the lands were classified and for reclamation of disturbed to a condition suitable for the purpose for which the lands were classified (0025) (FDR)	

MANAGEMENT ACTIVITIES	GENERAL DIRECTION	STANDARDS & GUIDELINES
CONTINUATION OF: Mining Law Compliance and Administration	02 Withdrawals must be for the purpose of protecting specific existing or proposed uses. Initiate actions for withdrawal from entry under the General Mining Laws when 36 CFR 228 and other applicable laws and regulations will not provide the opportunity for protection of surface resources and uses. (0026) (FDR) 03 Review cases of suspected abuse of the mining laws such as occupancy of the land for purposes other than prospecting, mining and related operations. Initiate appropriate actions to resolve: First action should be administrative. Failure of such action requires examination of claims for validity, followed by appropriate contest proceedings or legal action. (0027) (FDR)	
Minerals Management-Oil, Gas and Geothermal	01 Withdrawals of lands from operations of the mineral leasing acts will be requested only in exceptional situations because Federal decisions on mineral disposal under these acts are discretionary on a case-by-case basis (0029) (FDR) 02 Recommendations for or consent to issuance of leases or permits may include lands up to one-half mile within a "no lease" area, subject to no surface use or occupancy on the "no lease" lands. Forest Service (R-2) Supplement F to Form 3109-3, "Surface Use or Occupancy Stipulation", will apply to such "no lease" lands. "No lease" criteria appear under major land type headings below. 1 Unclassified Lands: a. Forest Service authorization of geophysical prospecting will include terms and conditions controlling operating methods and times to prevent or control adverse impacts on surface resources and uses.	

MANAGEMENT ACTIVITIES	GENERAL DIRECTION	STANDARDS & GUIDELINES
CONTINUATION OF Minerals Management-Oil, Gas and Geothermal	b Recommendations for and consent to BLM issuance of leases and permits will include all current standard stipulations and the Regionally approved special stipulations that may be necessary for additional protection of specific surface resources and uses Reclamation requirements will have the objective of returning disturbed lands to the planned uses These standard and current Regionally-approved special stipulations are in Appendix H to this Forest Plan	
	(1) Forest Service Stipulation 1.	
	(2) Special Region 2 Forest Service stipulation will be used as appropriate to the surface resource situation on the lands involved in a lease or permit These stipulations are titled as supplements to Forest Service Stipulation 1 and are listed below	
	(a) Forest Service (R-2) Supplement A to Forest Service Stipulation 1, "Limited Surface Use Stipulation " This stipulation notifies a lessee or permittee that certain described conditions exist upon the lands involved that require special operating plan provisions for their protection	
	(b) Forest Service (R-2) Supplement B to Forest Service Stipulation 1, "Conditional No Surface Disturbance Stipulation " This stipulation notifies a prospective lessee or permittee that certain described conditions exist upon tracts within the proposed lease or permit area that will prevent any surface disturbance affecting those tracts unless an operating plan can be devised that will convince the Forest Service that surface use, occupancy and reclamation can take place without causing irretrievable environmental damage	

MANAGEMENT ACTIVITIES	GENERAL DIRECTION	STANDARDS & GUIDELINES
CONTINUATION OF Minerals Management-Oil Gas and Geothermal	(c) Forest Service (R-2) Supplement C to Forest Service Stipulation 1, "Activity Coordination Stipulation." This stipulation notifies the lessee that surface values exist that are sensitive to high levels of activity In such circumstances, the Forest Service may require that activities on the lease lands, when multiple leaseholds are involved, be conducted by a single operator, similar to the conduct of operations under a unitization agreement approved by the Bureau of Land Management. An alternative approach would be joint Forest Service/BLM approval of a coordinated plan of operations involving multiple operations c Recommend against or deny consent to BLM for issuance of leases where operational damages on surface resources including the impacts of surface-based access, product transportation and ancillary facilities necessary to production and related operations, would be irreversible and irretrievable, with no potential for reclamantion ("no lease" lands) Negative recommendations or consent denials will be based on site-specific consideration of the following criteria (1) Slopes steeper than 60 percent (2) High erosion hazard rating (3) High geologic hazard rating (4) Low visual absorption capacity that prevents reclamation to establish visual quality objective (VQO) (5) A conclusion by the Forest Service (FS) and/or the United States Fish and Wildlife Service (USFWS) that the action will jeopardize the survival or recovery of federally listed threatened and endangered (T&E) wildlife or plant species (6) Intrusion upon the identified critical (USFWS) or essential (FS) habitat of a federally listed (T&E) wildlife or plant species or upon the plant or animal itself (7) Intrusion upon the habitat of individual plant or animal species listed by a state as threatened or endangered	

CONTINUATION OF.
Minerals Management-Oil Gas and Geothermal

(8) Intrusion upon the habitat of individual plant or animal species identified by the Regional Forester as needed special management to prevent its need for listing as a threatened or endangered species

(3140 GM)

2 Designated Wilderness, Congressionally designated Wilderness Study Areas, and areas recommended for Wilderness in Rare II on which Congress has not taken final action

a Geophysical prospecting, when authorized, will be subject to terms and conditions insuring that operations will be done by methods and at such times that there will be no significant adverse impacts on surface resources

(1) Geophysical prospecting will be authorized on leased lands and on lands for which the Forest Service will recommend or consent to the issuance of leases and permits ("leasable" lands)

(2) Geophysical prospecting may be authorized

(a) For "no lease" lands (see "c " following) adjacent to leased or leasable lands when the operator can show that geophysical information is necessary for exploratory leased/leasable lands in the event of a discovery of producible oil, gas or geothermal resources on leased lands

(b) For "no lease" lands when the prospecting proponent can show that the geophysical information is necessary for extending subsurface interpretation from leased/leasable lands across "no lease" lands to other leased/leasable lands. The proponent must also demonstrate that the information can be gained in no other way without significant adverse impacts on surface resources

MANAGEMENT ACTIVITIES	GENERAL DIRECTION	STANDARDS & GUIDELINES
CONTINUATION OF Minerals Management-Oil Gas and Geothermal	b Unless there is statutory languages to the contrary, in which case the statutory provisions control, recommend or consent to BLM for issuance of leases where operations including surface-based access, product transportation and other necessary ancillary facilities will not cause irreversible irretrievable damage to surface resources and where the lands disturbed can be restored as near as practical to natural conditions. In addition to all current standard stipulations, the following special Regional stipulation will be applied and is part of appendix H to this Forest Plan:	
	c Recommend against or deny consent to BLM for issuance of leases where operational damages on surface resources, including the impacts of surface-based access, product transportation and ancillary facilities necessary to production and related to operations, would be irreversible and irretrievable, with no potential for reclamation ("no lease" lands). Negative recommendations or consent denials will be based on site-specific consideration of the following criteria· (1) Slopes steeper than 40 percent (2) High erosion hazard rating (3) High geologic hazard rating. (4) Low visual absorption capacity that prevents restoration as near as practical to established visual quality (VQO). (5) A conclusion by the Forest Service (FS) and/or the United States Fish and Wildlife Service (USFWS) that the action will jeopardize the survival or recovery of federally listed threatened or endangered (T&E wildlife or plant species) (6) Intrusions upon the identified critical (USFWS) or essential (FS) habitat of a federally listed (T&E) wildlife or plant species or upon the plan or animal itself. (7) Intrusion upon the habitat of individual plant or animal species listed by a state as threatened or endangered.	

MANAGEMENT ACTIVITIES	GENERAL DIRECTION	STANDARDS & GUIDELINES
CONTINUATION OF· Minerals Management-Oil Gas and Geothermal	(8) Intrusion upon the habitat of individual plant or animal species identified by the Regional Forester as needing special management to prevent its need for listing as a threatened or endangered species (3141 GM) 3 Classified lands other than Wilderness and related, as described in "2" foregoing, which are not by law or otherwise withdrawn from operations under the mineral leasing acts. Examples of such lands include Wild and Scenic River System, RARE II Further Planning Areas, National Recreation Areas, National Historic Sites, Natural Areas, Special Areas---such as geological, scenic and zoological, and some other specific classifications a Forest Service authorize geophysical and similar prospecting only when terms and conditions can be applied that will protect the purposes for which the lands where classified. b Recommendations for and consent to BLM for issuance of leases and permits will include all current standard stipulations and the current Regionally-approved special stipulations necessary to protect the purposes for which the lands were classified Standard and special stipulations are in Appendix H to the Forest Plan See 1 b(1) under this Management Activity heading, foregoing, for the standard stipulations. Special stipulations to be applied as appropriate are: (1) Forest Service (R-2) Supplement E to Forest Service Stipulation 1, "Further Planning Area Stipulation." This stipulation applies to lands identified for further planning in the RARE II decision documents It specifies the nature and extent of operations allowed and the conditions to be met for their approval	

MANAGEMENT ACTIVITIES	GENERAL DIRECTION	STANDARDS & GUIDELINES
CONTINUATION OF Minerals Management-Oil Gas and Geothermal	(2) Forest Service (R-2) Supplement F to Forest Service Stipulation 1, "Classified Area Stipulation " This stipulation applies to lands classified under 36 CFR 251.23 and 294 1 for specific management purposes. Because of the regulatory provisions, no use or occupancy inconsistent with the classification is permitted. This does not necessarily mean recommendation against or denial of consent to BLM for issuance of leases The reason is that classified areas may be only small portions of large leaseholds (3) Forest Service (R-2) Supplement A to Forest Service Stipulation 1, "Limited Surface Use Stipulations." This stipulation notifies a lessee or permittee that certain described conditions exist upon the lands involved that require special operating plan provisions for their protection (4) Forest Service (R-20 Supplement G to Forest Service stipulation 1, "Wild and Scenic Rivers System Stipulations " This stipulation establishes operating conditions for lands under study by Congress for inclusion in the National Wild and Scenic Rivers System. It also provides for establishing appropriate operational controls should the land be included in the system or should the lands not be added to the system (5) Forest Service (R-2) Supplement B to Forest Service Stipulation 1, "Conditional No Surface Disturbance Stipulation." This stipulation notifies a prospective lessee that certain described conditions exist	

MANAGEMENT ACTIVITIES	GENERAL DIRECTION	STANDARDS & GUIDELINES
CONTINUATION OF Minerals Management-Oil Gas and Geothermal	upon tracts within the proposed lease or permit area that will prevent any surface disturbance affecting those tracts unless an operating plan can be divided that will convince the Forest Service that surface use, occupance and reclamation can take place without causing irretrievable environmental damage	
	(6) Forest Service (R-2) Supplement C to Forest Service Stipulation 1, "Activity Coordination Stipulation." This stipulation notifies the lessee that surface values exist that are sensitive to high levels of activity. In such circumstance, the Forest Service may require that activities on the lease lands, when multiple leaseholds are involved, be conducted by a single operator, similar to the conduct of operations under a unitization agreement approved by the Minerals Management Service. An alternative approach would be joint Forest Service/Geological Survey approval of a plan of operations involving multiple operators.	
	c Recommend against or deny consent to BLM for issuance of leases where operation damages on surface resources, including the impacts of surface-based access, product transportation and ancillary facilities necessary to production and related operations, would be irreversible and irretrievable, with no potential for reclamation ("no lease" lands) Negative recommendations or consent denials will be based on site-specific consideration of the following criteria	

MANAGEMENT ACTIVITIES	GENERAL DIRECTION	STANDARDS & GUIDELINES
CONTINUATION OF Minerals Management-Oil Gas and Geothermal	(1) Would operations destroy or irretrievably damage the characteristics or purposes for which the lands were classified? (2) Slopes steeper than 40 percent (3) High erosion hazard rating. (4) High geologic hazard rating (5) Low visual absorption capacity that prevents reclamation to establish visual quality objective (VQO) (6) A conclusion by the Forest Service (FS) and/or the United States Fish and Wildlife Service (USFWS) that the action will jeopardize the survival or recovery of federally listed threatened or endangered (T&E) wildlife or plant species (7) Intrusions upon the identified critical (USFWS) or essential (FS) habitat of a federally listed (T&E) wildlife or plant species or upon the plant or animal itself (8) Intrusions upon the habitat of individual plant or animal species listed by a state as threatened or endangered (9) Intrusion upon the habitat of individual plant or animal species identified by the Regional Forester as needing special management to prevent its need for listing as a threatened or endangered species (3142 GM)	
Minerals Management-Coal, Leasable Uranium and Non-Energy Common Minerals Materials	01 Withdrawals of lands from operations of the mineral leasing acts will be requested only in exceptional situations because Federal decisions on mineral disposals under these acts are discretionary on a case-by-case basis (0029) (FDR)	
	02 Withdrawals from disposal of common variety mineral materials are unnecessary The Forest Service has total discretionary authority for such disposals (0030) (FDR)	

MANAGEMENT ACTIVITIES	GENERAL DIRECTION	STANDARDS & GUIDELINES

CONTINUATION OF:
Minerals Management-Coal, Leasable Uranium and Non-Energy Common Minerals Materials

03 General direction for Unclassified lands, Designated Wilderness, and Classified lands other than Wilderness and related are:

1 Unclassified Lands:

a. Forest Service authorize common variety exploration and disposals under terms and conditions to prevent or control adverse impacts on surface resources and uses. The objective of reclamation requirements will be to return disturbed lands to the planned uses.

b Recommendations for and consent to BLM for issuance of leases, permits, and coal exploration licenses will include all current standard stipulations and the Regionally-approved special stipulations that may be necessary for additional protection of specific surface resources The objective of reclamation requirements will be to return disturbed lands to the planned uses The standard and current Regionally-approved special stipulations are in Appendix H to this Forest Plan

(1) Forest Service Stipulation 1

(2) Special Forest Service, Region 2, Stipulations will be used as appropriate to the surface resource situation involved in a lease, permit or license. These stipulations are titled as supplements to Forest Service Stipulation 1 and are listed below.

(a) Forest Service (R-2) Supplement A to Forest Service Stipulation 1, "Limited Surface Use Stipulations " This stipulation notifies a lessee, permittee or licensee the certain described conditions exist upon the lands involved that require special operating plan provisions for their protection.

MANAGEMENT ACTIVITIES	GENERAL DIRECTION	STANDARDS & GUIDELINES
CONTINUATION OF Minerals Management-Oil Coal, Leasable Uranium and Non-Energy Common Minerals	(b) Forest Service (R-2) Supplement B to Forest Service Stipulation 1, "Conditional No Surface Stipulation " The usual application of this stipulation for mineable minerals will be in exploration permits and licenses The stipulation notifies a prospective lessee, permittee or licensee that certain described conditions exist upon tracts within the proposed lease or permit area that will prevent any surface disturbance affecting those tracts unless an operating plan can be devised that will convince the Forest Service that surface use, occupance and reclamation can take place without causing irretrievable environmental damage. c Recommend against or deny consent to BLM for issuance of leases, permits or coal exploration licenses where operational damages on surface resources, including the impacts of surface-based access, product transportation and ancillary facilities necessary to production and related operations, would be irreversible and irretrievable, with no potential for reclamation. Negative recommendations or consent denials will be based on consideration of the following criteria. (1) Terrain as it affects waste dumps and tailings disposal--related to dump and tailing stability, adequate room for placement (2) Whether or not negative impacts on water quality are preventable. (3) For surface-based access, product transportation and ancillary facilities necessary to operations Slopes steeper than 60 percent, high erosion hazard, high geologic hazard (4) Low visual absorption capacity that prevents reclamation to established value quality objective (VQO)	

MANAGEMENT ACTIVITIES	GENERAL DIRECTION	STANDARDS & GUIDELINES
CONTINUATION OF. Minerals Management-Oil, Coal, Leasable Uranium and Non-Energy Common Minerals	(5) A conclusion by the Forest Service (FS) and/or the United States Fish and Wildlife Service (USFWS) that the action will jeopardize the survival recovery of federally listed threatened or endangered (T&E) wildlife or plant species (6) Intrusions upon the identified critical (USFWS) or essential (FS) habitat of a federally listed (T&E) wildlife or plant species or upon the plant or animal itself (7) Intrusion upon the habitat of individual plant or animal species listed by a state as threatened or endangered (8) Intrusion upon the habitat of individual plant or animal species identified by the Regional Forester as needing special management to prevent its need for listing as a threatened or endangered species. (3143 GM) 2 Designated Wilderness, Congressionally-designated Wilderness study areas, and areas recommended for Wilderness in RARE II on which Congress has not taken final action a Prospecting for and disposals of common varieties of mineral materials will not be authorized b. Coal mining in the National Wilderness Preservation System is prohibited by the Coal Leasing Amendments Act of 1975 Therefore, coal leasing and coal exploration licenses will not be authorized for any of the foregoing described lands	

MANAGEMENT ACTIVITIES		GENERAL DIRECTION	STANDARDS & GUIDELINES
CONTINUATION OF: Minerals Management Coal, Leasable Uranium and Non-Energy Common Minerals Materials	c	Unless there is statutory language to the contrary, in which case the statutory provisions control, recommend, or consent to BLM for issuance of leases or permits where operations, including surface-based access, product transportation and other necessary ancillary facilities, will not cause irreversible and irretrievable damage to surface resources and where the lands of disturbed can be restored as near as practical to natural conditions In addition to all current standard stipulations, the special stipulation described below will be applied; this stipulation is part of Appendix H to this Forest Plan	
	d	Recommend against or deny consent to BLM for issuance of leases or permits where operational damages on surface resources, including the impacts of surface-based access, product transportation and ancillary facilities necessary to operations, would be irreversible and irretrievable, with no potential for restoration as near as practical to natural conditions Negative recommendations or consent denials will be based on consideration of the following criteria· (1) Terrain as it affects waste dumps and *tailings disposal--related to dump and* tailing can be handled or treated in a manner that would allow restoration as near as practical to natural conditions (2) Whether or not negative impacts on water quality are preventable. (3) For surface-based access, product transportation and ancillary facilities necessary to operations Slopes steeper than 40 percent; high erosion hazard, high geological hazard. (4) Low visual absorption capacity that prevents restoration to establish visual quality objective	

MANAGEMENT ACTIVITIES	GENERAL DIRECTION	STANDARDS & GUIDELINES
CONTINUATION OF: Minerals Management- Coal, Leasable Uranium and Non-Energy Common Minerals Materials	(5) A conclusion by the Forest Service (FS) and/or the United States Fish and Wildlife Service (USFWS) that the action will jeopardize the survival or recovery of federally listed threatened or endangered (T&E) wildlife or plant species. (6) Intrusions upon the identified critical (USFWS) or essential (FS) habitat of a federally listed (T&E) wildlife or plant species or upon the plant or animal itself. (7) Intrusions upon the habitat of individual plant or animal species listed by a state as threatened or endangered (8) Intrusion upon the habitat of individual plant or animal species identified by the Regional Forester as needing special management to prevent its need for listing as a threatened or endangered species. (3144 GM) 3 Classified lands other than Wilderness and related, as described in "2" foregoing, which are not by law or otherwise withdrawn from operations under the mineral leasing acts Examples of such lands include Wild amd Scenic River System, RARE II Further Planning Areas, National Recreation Areas, National Historic Sites, Natural Areas, Special Areas-such as geological, scenic and zoological, and some other specific classifications a Forest Service authorize common variety exploration and disposals under terms and conditions to project the purposes for which the lands were classified The objective of reclamation requirements will be to return disturbed lands to a condition suitable for the purposes of which they were classified For Special Areas classified under 36 CFR 294 and 251/23 for specific management purposes, the regulatory provisions permit no use or occupancy inconsistent with the classification.	

MANAGEMENT ACTIVITIES	GENERAL DIRECTION	STANDARDS & GUIDELINES
CONTINUATION OF· Minerals Management- Coal, Leasable Uranium and Non-Energy Common Minerals Materials	b. Coal mining is prohibited by the Coal Leasing Amendments Act of 1975, within the National System of Trails and the Wild and Scenic Rivers System, including Study rivers designated by the Act This prohibitions also applies to the National Wildlife Refuge System, which lands are not under Forest Service jurisdiction c Recommend or consent to BLM for issuance of leases, permits, or licenses only when terms and conditions can be applied that will protect the purposes for which the lands were classified d Recommendations and consent to BLM for issuance of leases, permits or licenses will include all current standard stipulations and the current Regionally approved special stipulations necessary to protect the purposes for which the lands were classified Standard and special stipulations are in Appendix H to this Forest Plan See 1 b(1) under this management heading for the standard stipulations. Special stipulations to be applied as appropriate are: (1) Forest Service (R-2) Supplement E to Forest Service Stipulation 1, "Further Planning Area Stipulation " This stipulation applies to lands identified for further planning in the RARE II decision documents. It specifies the nature and extent of operations allowed and the conditions to be met for their approval. (2) Forest Service (R-2) Supplement F to Forest Service Stipulation 1, "Classified Area Stipulation." This stipulation applies to lands classified under 36 CFR 294 and 251 23 for specific management purposes. Because of the regulatory provisions, no use or occupancy inconsistent with the classification is permitted This does not necessarily mean recommendation against or denial of consent	

MANAGEMENT ACTIVITIES	GENERAL DIRECTION	STANDARDS & GUIDELINES
CONTINUATION OF Minerals Management Coal, Leasable Uranium and Non-Energy Common Minerals Materials	to issuance of leases, permits or licenses is necessary The reasons is that classified areas may be only small portions of the lands involved. (3) Forest Service (R-2) Supplement A to Forest Service Stipulations 1, "Limited Surface Use Stipulation " This stipulation notifies a lessee, permittee or licensee that certain described conditions exist upon the lands involved that require special operating plan provisions for their protection (4) Forest Service (R-2) Supplement B to Forest Service Stipulation, "Conditional No Surface Disturbance Stipulation " This stipulation notifies the prospective lessee, permittee or licensee that certain described conditions exist upon tracts within the proposed lease or permit area that will prevent any surface disturbance affecting those tracts unless a operating plan can be devised that will convince the Forest Service that surface use, occupancy and reclamation can take place without causing irretrievable environmental damage. e Recommend against or deny consent to issuance of leases, permits or licenses where operational damage on surface resources including the impacts of surface-based access, product transportation and ancillary facilities necessary to production and related operations, would be irreversible and irretrievable, with no potential for reclamation Negative recommendations or consent denials will be based on consideration of the following criteria (1) Would operations destroy or irretrievably damage the characteristics or purposes for which the lands are classified?	

MANAGEMENT ACTIVITIES	GENERAL DIRECTION	STANDARDS & GUIDELINES
CONTINUATION OF: Minerals Management- Coal, Leasable Uranium and Non-Energy Common Minerals Materials	(2) Terrain as it affects waste dumps and tailings disposal--related to dump and tailing stability, adequate room or placement, and whether or not waste and tailings can be handled or treated in a manner that results in no detrimental effects on the purposes for which the lands were classified (3) Whether or not negative impacts on water quality are preventable (4) For surface-based access, product transportation and ancillary facilities necessary to operations· Slopes steeper that 40 percent, high erosion hazard; high geologic hazard (5) Low visual absorption capacity that prevents reclamation to establish visual quality objectives (VQO). (6) A conclusion by the Forest Service (FS) and/or the United States Fish and Wildlife Service (USFWS) that the action will jeopardize the survival recovery of federally listed threatened or endangered (T&E) wildlife or plant species. (7) Intrusions upon the identified critical (USFWS) or essential (FS) habitat of a federally listed (T&E) wildlife or plant species or upon the plant or animal itself. (8) Intrusion upon the habitat of individual plant or animal of a species listed by a state as threatened or endangered. (9) Intrusion upon the habitat of individual plant or animal of a species identified by the Regional Forester as needing special management to prevent its need for listing as threatened or endangered species. (3145 GM)	

MANAGEMENT ACTIVITIES	GENERAL DIRECTION	STANDARDS & GUIDELINES
Special Use Management (Non -Recreational)	01 Act on special use applications according to the following priorities: a. Land and land use activity requests relating to public safety, health and welfare, e g., highways, powerlines and public service improvements. b Land and land use activities contributing to increased economic activity associated with National Forest resources, e.g ,, oil and gas, and energy minerals c Land and land use activities that benefit only private users, e g., road permits, right-of-ways for powerlines, telephones, waterlines, etc (0065) (FDR) 02 Do not approve any special use applications that can be reasonably met on private or other Federal lands unless it is clearly in the public interest. (0071) (FDR) 03 Bury electrical utility lines of 33 KV or less and telephone lines except when: a Visual quality objectives of the area can be met using an overhead line b Burial is not feasible due to geologic hazard or un-favorable geologic conditions. c It is not economically efficient as determined by a cost analysis. d Greater long-term site disturbance would result e It is not technically feasible (0072 GM) 04 Do not approve special use applications for area adjacent to developed sites unless the proposed use is compatible with the purpose and use of the developed site. (0389) (FDR)	
Rights-of-way and Land	01 Acquire rights-of-way on existing Forest System Roads and trails that cross private land (0162) (FDR)	